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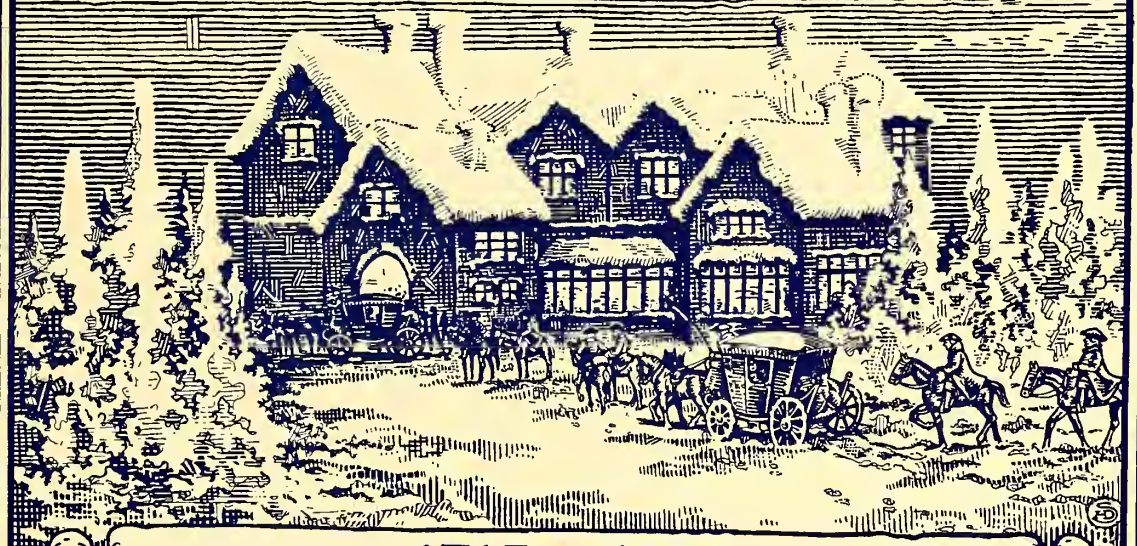
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1715 — 1927

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A Merry Xmas and a Prosperous New Year.

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bring added Prosperity

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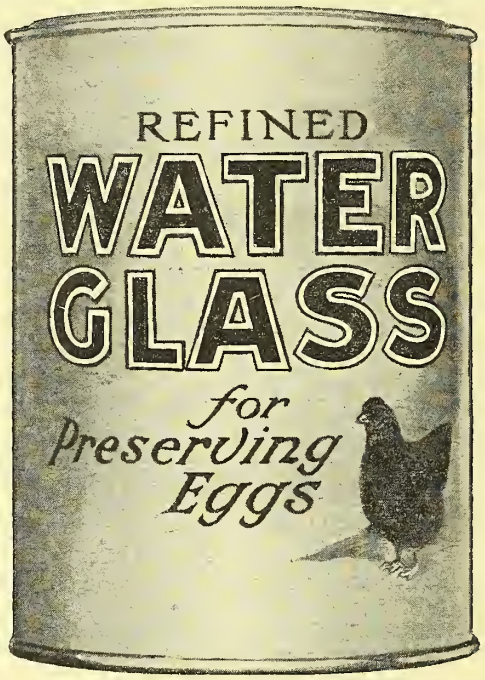
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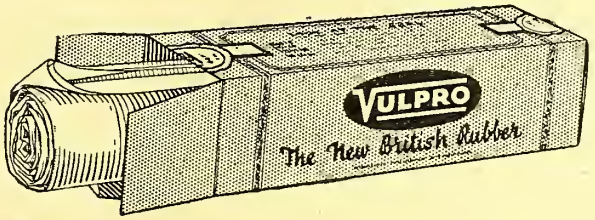
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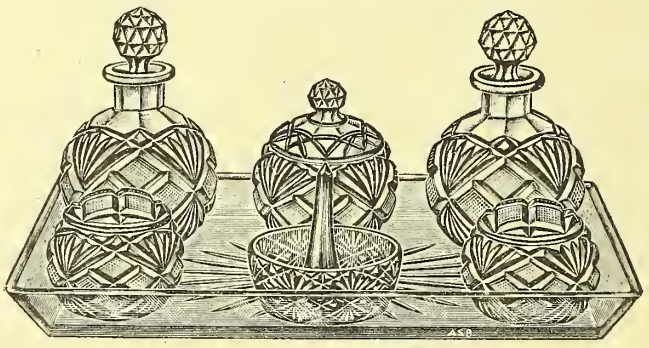
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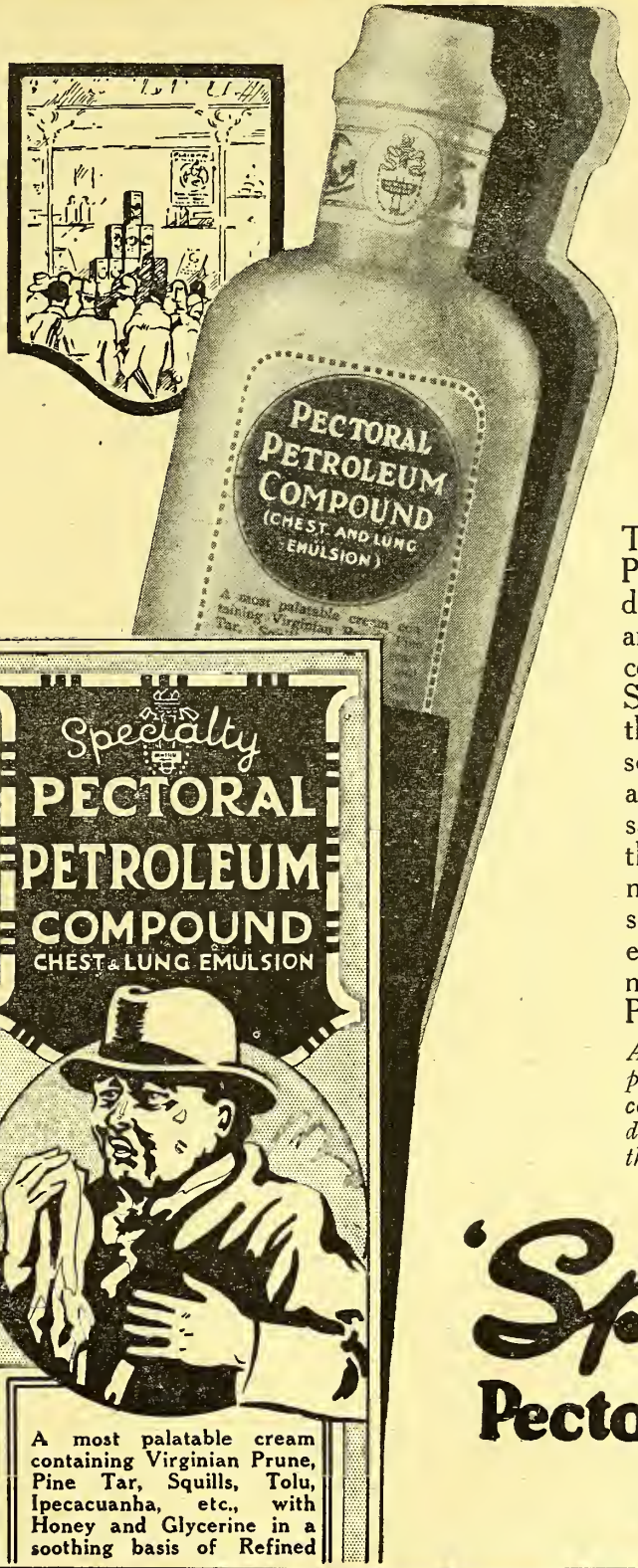
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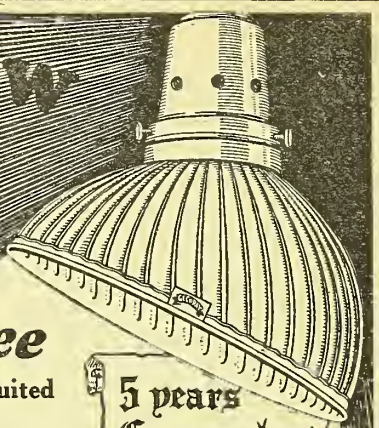
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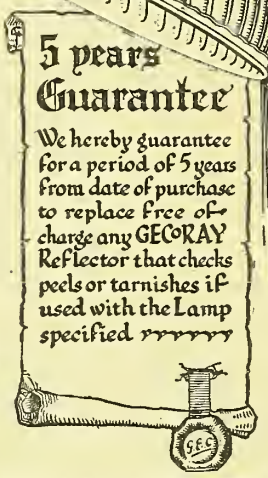
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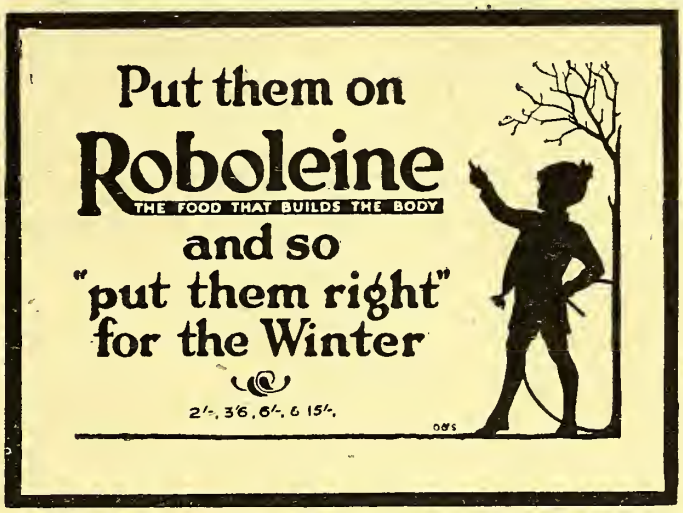
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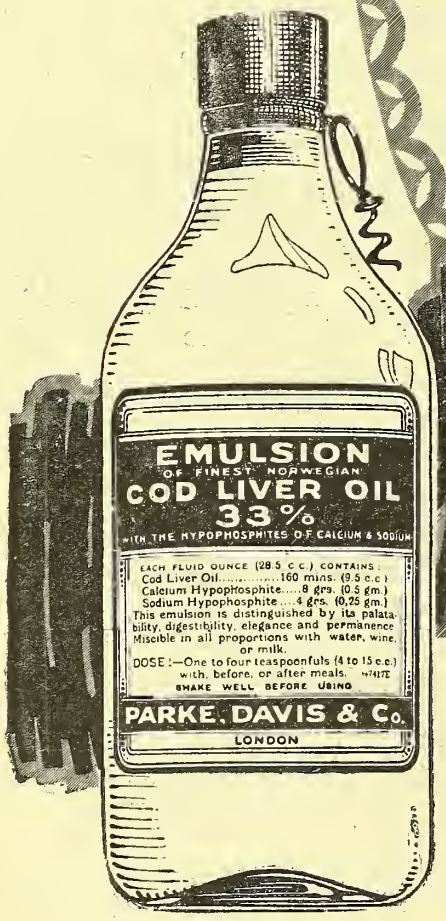
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Maw's Page



Greetings

THE heartiest of Christmas and New Year greetings from the House of Maw to pharmacists and their families the world over.

May the dawning of 1927 find one and all stimulated by a successful Old Year to work not only for increased individual prosperity, but for the good of pharmacy as a whole.

S. Maw, Son & Sons, Ltd.
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and Barnet.

Extract from "The Pharmaceutical Journal," July 10, 1926.

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Distilled by Plaimar, Ltd., Perth, West Australia, from West Australian Sandalwood

has always conformed to the Characters and Tests referred to above.

Stocks are now available of "Plaimar"
ESSENTIAL OIL of ARAUCARIA
a distinctly new semi-solid aromatic, having a pronounced value as a fixative. This Oil has a Rose odour and contains a percentage of Esters of Geraniol.

Samples, price and analysis may be obtained from

MAXWELL, PLAISTOWE & CO., LTD.
8 OLD JEWRY, LONDON, E.C.2
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MOHAWK OIL PEPPERMINT

Single Distilled American
Redistilled, U.S.P., American

Preferred and specified by manufacturers as products of unexcelled purity and delicacy of flavour.

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MAGNUS, MABEE & REYNARD, Inc.
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32 CLIFF ST., NEW YORK, U.S.A.

Sole Selling Agents for the British Isles :—
OLD STRAND CHEMICAL & TRADING Co., Ltd.
Audrey House, Ely Place - LONDON, E.C.1.

ESTABLISHED 1768.

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ESSENTIAL OILS
FLORAL WATERS
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OLIVE OIL

ANTOINE CHIRIS LTD.
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SPURWAY ET CIE
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WARMEST CHRISTMAS GREETINGS

TO THEIR CUSTOMERS IN ALL PARTS OF THE WORLD.

PARFUMERIE DE L'ILE NOTRE DAME
LONDON, E.C.2, AND
CANNES-GRASSE, RIVIERA.

THE STANDARD **D & O** OF QUALITY
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AMERICAN ESSENTIAL OILS

GENUINE AMERICAN PEPPERMINT OIL

Natural : finest single distilled. Prismentha : re-distilled. Supermentha : rectified.

OILS OF NUTMEG, COPAIBA, SASSAFRAS, CEDARWOOD, SPEARMINT, WORMSEED.
BALSAMS: PERU, COPAIBA, TOLU.

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DUBENDORF, ZURICH - SWITZERLAND.

Manufacturers of

ARTIFICIAL MUSKS
100%

AMBRETTE
KETONE XYLOL

The "Flora" Musks are the essence of perfection, and striking examples of a factory with a large reputation for quality.

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Samples and Prices from—
CHAS. ZIMMERMANN & CO. (Chemicals), LTD.
33 St. Mary-at-Hill, London, E.C.3

IN THE ADDIS BLUE BOX TOOTH BRUSHES

— ON THE —

P.A.T.A.

Price **2/6**

—

Price to Chemists **1/8**, or **1/6** in gross lots.

Reg. No. 593367.

Addis ESTB. 1780 Prophylactic



1/- Per Brush PROFIT.

Price **2/6**

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Addis SEVERE SERVICE ESTB 1780



1/- Per Brush PROFIT.

MADE OF VERY HARD UNBLEACHED BRISTLES FOR SEVERE SERVICE.

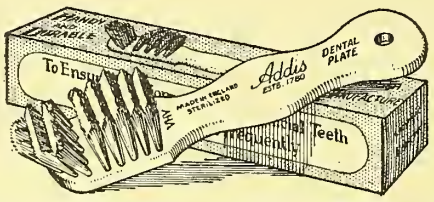
Price **2/6**

Price to Chemists **1/8**, or **1/6** in gross lots.

1/- Per Brush PROFIT.

Addis ESTB 1780

WINGED DENTAL PLATE



ONE CANNOT DISPUTE the fact that **ADDIS** Tooth Brushes are the best. The **Workmanship, Bristle** and **Packing** is superior to all other makes, and are **made to be used in Hot or Cold Water.**

MADE BY THE OLDEST FIRM OF TOOTH BRUSH MAKERS IN THE WORLD AND SUPPLIED THROUGH THE WHOLESALE HOUSES.

GROSS LOTS CAN BE MADE UP OF ALL ABOVE LINES.

Write us direct for particulars of Show Cases and Advertising Matter.

ADDIS, Brush Works, HERTFORD, England

The friend of joy and the joy of friends

PORTS

	Per dozen bottles	½-bottles
FINE OLD TAWNY V.O.T., generous and captivating	72/-	39/-
JOSÉ SERRANO, a full-bodied wine of excellent bouquet and flavour	60/-	33/-
RODRIGO, FINE OLD, a selected Alto Douro Wine	42/-	24/-
AYRTON'S INVALID, Mature Old Port, carefully selected for general use and the sick room ...	42/-	24/-
WHITE, FINEST OLD	48/-	27/-

SHERRIES

	Per dozen bottles	½-bottles
'No. 34' CHOICE OLD BROWN, 1868, full flavoured Amontillado, a fine Old Sherry ...	72/-	39/-
JOSÉ SERRANO MATURED OLD SOLERA, nutty and elegant	60/-	33/-
GOLDEN BROWN	51/-	27/-
YELLOW SEAL	36/-	21/-

MEDICATED WINES

		1-3 doz.	6 doz.	1 gross
LIEBIG'S BEEF & MALT ...	Rep. pints	21/-	20/-	19/-
	„ quarts	36/-	34/-	33/-
LIEBIG'S BEEF & MALT with QUININE	„ pints	22/6	21/6	20/6
	„ quarts	39/-	38/-	37/-
ORANGE QUININE	„ pints	12/6	12/-	11/6
	„ quarts	20/6	20/-	19/6



AYRTON, SAUNDERS & CO., LTD.

34 Hanover Street [*Telegrams: "Sundries, Liverpool."*] **LIVERPOOL**



A Happy Christmas
and a
Prosperous New Year
to all our Friends.

The United Chemists' Association, Limited

PRIORY COURT WORKS
CHELTENHAM SPA.

And at

6 KEITH GROVE,
UXBRIDGE ROAD,
SHEPHERD'S BUSH, W.12



TO ALL OUR FRIENDS AT HOME AND ABROAD

GREETINGS
AND GOOD WISHES
- FOR A -
HAPPY XMAS
- AND A -
BRIGHT AND PROSPEROUS
NEW YEAR

From - -
FRANCIS NEWBERY & SONS, Ltd.
27/8 Charterhouse Square, LONDON, E.C.
Also at CARDIFF and LIVERPOOL.

OVERALLS
for
Chemists & Druggists

Jackets and Coats of very superior quality, made from the most reliable materials, smartly cut and thoroughly well finished in every detail.

WHITE DRILL JACKETS	*6/11, 8/11, 10/6*
KHAKI DRILL COATS	*7/11, 10/6, 12/6, 14/11*
WHITE DRILL COATS	*... ... ... 10/6*
BLACK DRILL COATS	*... ... ... 16/6*
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STOCK SIZES 34 to 44 chest ; measure over waistcoat. Special pockets and little adjustments can be made without extra charge. POSTAGE on single coat 9d., but 20/- orders upwards carriage paid. SPECIAL PRICES FOR LARGE QUANTITIES.

GARDINER
& CO. (*The Scotch House*), LTD.
1, 3, 5 COMMERCIAL RD., LONDON, E.1.
Telephone : Avenue 6650 *Established 1833.*
BRANCHES:
Deptford, Edgware Road, Woolwich, Clapham Junction and Knightsbridge.

Thomas Kerfoot & Co. Ltd.

offer to all their customers and trade friends.

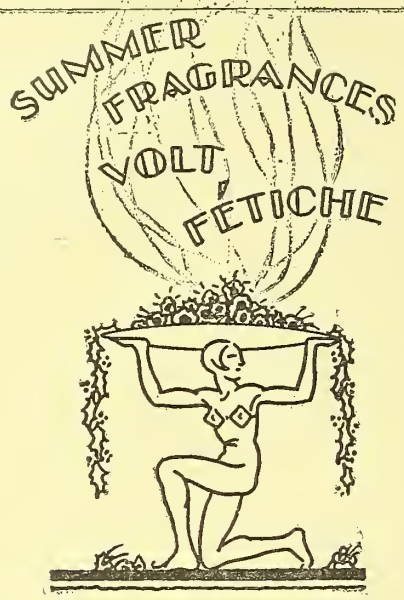
A GREETING FOR CHRISTMAS AND THE NEW YEAR

and wish for them a prosperous 1927 — especially with

"VAPEX," "KEROCAIN" "CASTOLS," "DISTOL" OTTOS, "MINERAL SPRING" HEALTH GRANULES, EMULSION PASTILLES,
and other products of the Garden Laboratories at Bardsley Vale

THOMAS KERFOOT & CO LTD
BARDSLEY VALE, LANCASHIRE,
& Bardsley House, London, N.1
ESTABLISHED 1797.

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OFFERING

WE offer to all Friends, old and new, our sincere and hearty wishes for the festive Season. With this expression of goodwill we would couple the hope that the coming year will continue to provide the House of Piver with the privilege of that friendship.

L. T. PIVER

PARIS

London Depot—
102 DEAN STREET, OXFORD ST., W.1
'Phone: Regent 5260.

DEARBORN (1923) LTD.

37 Gray's Inn Road, London, W.C.1

Toilet Specialties.

	Price per doz. to Retailer	Selling Price P.A.T.A.
PILENTA SOAP .. .. A complexion soap.	10/–	1/–
PROLACTUM .. .. For the lips.	10/–	1/–
PARSIDIUM JELLY .. For wrinkles.	10/–	1/–
ALLACITE OF ORANGE BLOSSOM .. .. A dressing cream.	22/6	2/6
BORANIUM .. .. A hair tonic.	22/6	2/6
CLEMINITE .. .. For a face lotion.	22/6	2/6
COLLIANDUM .. .. For a face tint.	22/6	2/6
PERGOL .. .. .. A deodorant.	22/6	2/6
TEKKO PASTE .. .. Camphor cream.	22/6	2/6
STALLAX .. .. For a shampoo.	13/6 22/6	1/6 2/6
JETTALINE .. .. .. For clearing the skin.	31/6	3/6
PHEMINOL .. .. A depilatory.	36/–	4/–
MENNALINE .. .. For the eyelashes.	36/–	4/–
MERCOLIZED WAX .. A face cream.	18/– 31/6	2/– 3/6
STYMOL .. .. For oily complexions and blackheads.	36/–	4/–
SILMERINE .. .. Hair-curling fluid.	22/6	2/6
BARSYDE .. .. Dandruff eradicator.	22/6	2/6
TAMMALITE .. .. For grey and faded hair.	22/6	2/6
LIQUID PERGOL .. .. To check excessive perspiration locally.	31/6	3/6
BICROLIUM .. .. For whitening the hands.	22/6	2/6
COCONOIDS .. .. For figure development.	31/6	3/6

The Products of

Messrs. PARKER, BELMONT & CO.

CLYNOL BERRIES .. For obesity.	36/– 58/6	4/– 6/6
SOFT PALERIUM .. For wrinkles.	45/–	5/–
LIQUID NAIL POTASH .. Brilliant and lastiug.	10/–	1/–

Stocked by ALL Wholesale Houses.

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Australia: ALL WHOLESALERS, & DEARBORN (Australia), Ltd., Grace House, Clarence Street, Sydney.
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STILL BROADCASTING SAMPLES!

To Increase YOUR Trade

THE extensive and intensive advertising campaign constantly running in connection with "Harlene" continues and will continue to draw immense response from all over the country. Thousands of Free Trial Gift Parcels are dispatched to new applicants every day, thus increasing the already colossal retail business.

Do you stock the following "Quick Sellers"?

'Harlene' for the Hair
'Uzon' Brilliantine
'Cremex' Shampoo Powders
'Astol' for Grey Hair
'Astine' Vanishing Cream
'Astine' Tooth Cream
'Astine' Shaving Stick
'Astine' Nail Cream

Every day "Harlene-Hair-Drill" becomes more popular and every day the demand for "Harlene" preparations becomes greater. Don't be behind the times and turn away good business because you have not got sufficient stocks.

PLACE YOUR ORDER TO-DAY.

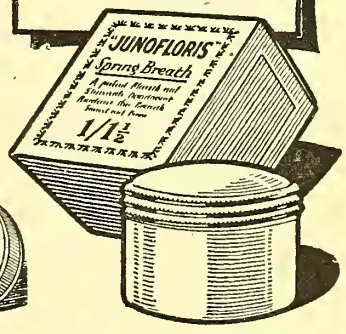
"HARLENE-HAIR-DRILL" is **EVERYONE'S** Toilet Exercise because it requires so little time to produce beneficial results.



"HARLENE-HAIR-DRILL" preparations should be stocked by every Chemist and Drug Store because it is **EVERYONE'S** Toilet Exercise.

"JUNOFLORIS"
Spring Breath Tablets.
A Breath Purifier & Antiseptic Mouth Deodorant —Not a Cachou.
Prices (minimum retail) **7½d. 1/1½** and **3/-** box.
Makers **6/8, 12/-** & **32/-** doz.
Less **20%** discount.

"JUNOFLORIS"
Dentifrice.
A splendid Teeth Whitener & Cleaner & Breath Purifier.
Prices (min. retail) **7½d.** & **1/1½**
Makers **6/8** & **12/-** doz.
Less 20% discount.



EDWARDS' HARLENE, Limited

20, 22, 24 & 26 LAMB'S CONDUIT STREET, LONDON, W.C.1

A TOILET NECESSITY

Armand Eau-de-Cologne Cleansing
:: Cream is something new ::

It serves one purpose—that of effectually removing grime, dirt and powder and rouge make up from the skin. It is daintily packed in jars to sell at **2/-**. Wholesale **16/6** per dozen, with quarter dozen extra with full dozens. Dainty showcards supplied.

Your P.A.T.A. Wholesaler can supply you.

Florian & Armand, Ltd.

QUEENSWAY - PONDERS END - MIDDLESEX

GALJADO HAIR COLOUR RESTORER



For Grey or Faded Hair.

A preparation which sells on its merits. Non-injurious.

In two sizes:
Retail: 2/- and 3/6 per bottle.
Trade: 12/- and 22/- per dozen.
TRIAL DOZEN SENT POST FREE.
Cash with order.
Note the Profit.
Of all Wholesalers or direct.

THE GALJADO PERFUMERY CO. Ltd.
93 Worship Street, London, E.C.2.

NOVELTY PERFUMES



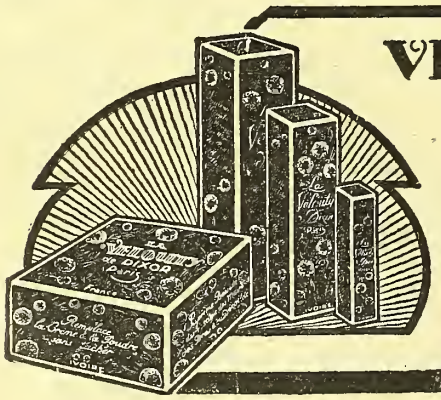
THE **"EVER-SCENTED" ROSE**
(Flower has wick-stem to perfume)
1½ oz. Vases
Singly boxed
24/- doz.

1 oz. Globe Wickers DEVON VIOLET and Various Perfumes
Singly boxed
15/- doz.



Special Terms to Exporters

E. N. BROMAGE & CO., 73 Selhurst Rd., S.E.25



VELOUTY de DIXOR PARIS
COMBINED CREAM AND POWDER
The advertised line that you are asked for
DAINTY PRESENTATION
Samples free upon receipt of tradecard or billhead

Prices:—				
Full size pot	21/- doz.	Retail	2/9
Super Tube	22/- „	„	3/-
Large „	14/- „	„	2/-
Handbag „	3/- „	„	6d.

Made in three shades: WHITE. IVORY and NATURAL
Obtainable from your regular Wholesaler or direct from the Sole British Agents:
DEBACQ & HARROP, 68 Newman Street, Oxford Street, LONDON, W.1



Mysore Government Seal is your guarantee that the Oil is the finest in the World

EAST INDIAN

SANDALWOOD OIL

Sole European Distributors;

ESSENFLOUR PRODUCTS LTD.

CHURCH WHARF, CHISWICK MALL, LONDON, W.4.

Telephone: Chiswick 3463. Telegrams: "EKDUM, LONDON."

MORGAN'S POMADE

A genuine preparation which performs all that it claims—namely, to restore grey and faded hair to its original colour, to strengthen the hair against further danger of becoming dry and thin, to remove and prevent the recurrence of scurf and all unhealthy conditions of the scalp.

Thirty-five years' solid reputation. *On the list of the P.A.T.A.*

Retail *1/9* per pot; *3/3* per pot.
Wholesale *14/-* per doz.; *26/-* per doz.
1-lb. jars for Saloon use at *6/3* per jar.

Increase your Sales by Displaying a Framed Showcard. Limited Supply held. Send Trade Card for same at once.

Obtainable from all the leading Wholesale Houses, or direct—

THE MARIE ANTOINETTE CO. 149 JUNCTION ROAD LONDON, N.19

(Note New Address) (2)

ROWLAND'S MACASSAR OIL

A line it pays to stock.

P. A. T. A. 3/6, 7/-, 10/6.

THROUGH ALL WHOLESALERS.

A. Rowland & Sons, Ltd.
112 GUILFORD STREET, LONDON, W.C.1.

ANYTHING IN THE SUNDRIES LINE

RENE HEYMANS LTD.

WHOLESALE ONLY.

including ENEMAS, WHIRLING SPRAYS, SOOTHER FITTINGS, DOUCHE FITTINGS, POWDER and VANITY PUFFS, BRUSHES, COMBS, POWDER PUFF :: :: :: :: MANUFACTURING ACCESSORIES, Etc., Etc. :: :: :: ::

Our Paris House is always on the look-out for Novelties suitable for manufacturing purposes, and we shall be glad to obtain articles for clients.

9, 10 DOMINGO STREET LONDON, E.C.1

BIDWELLS' PROPHYLACTIC TOOTH BRUSHES

IN THREE SIZES



SILVERED WIRES.

EACH IN CARTON.

CASTLE MILLS, AXMINSTER. On 6 dozen lots own name free on Carton, if desired.

Telephone: Axminster 5. *Telegrams: ".Coate, Axminster."*

COATE & CO. (Axminster) Ltd.

The London Brush Works, Axminster, Devon.

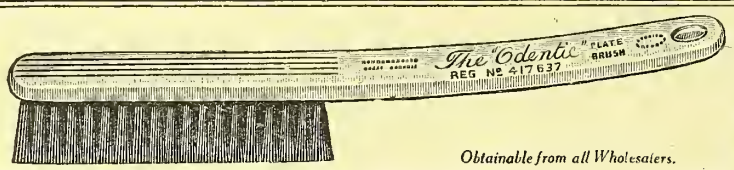
Estab. 1847.

Manufacturers of Super British Brushes

Our Special "PROPHYLACTIC" Tooth Brushes—

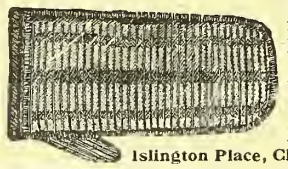
3 row Hard, Medium, Soft, Yellow Hair @ ... ... 16/- per dozen
4 „ „ „ „ „ „ ... ... 18/- „ „

Orders for one gross supplied in Cartons with customer's name and address free.
Every Brush Guaranteed. British made by British Labour. Send for our present list of prices.



Obtainable from all Wholesalers.

"ODENTIC" PLATE BRUSH
(Reg. No. 417637)
For ARTIFICIAL DENTURES
Manufactured by—
W. R. SPEER & SON (Estd. over 100 years)
Tooth-Brush Makers,
215 DALSTON LANE, LONDON, E.8.



Specialists in the Manufacture of—
HORSEHAIR FLESH GLOVES,
BATH GLOVES &c.
Wholesale and Export.
LAWRENCE & CO.
Islington Place, Cloudesley Road, London, N.1.

DO YOUR CUSTOMERS WANT
A free 3/11 Pair of '3 Queen's' Stockings?
OF COURSE.
Tell them to collect 6 lids from the 1/- boxes and send to
J. C. GAMBLES & CO. LTD
SWAN-DOWN
211-15 BLACKFRIARS RD. LONDON, S.E.1



THE recent revision of the WORKMEN'S COMPENSATION ACT has caused certain extensions of the liability of an

EMPLOYER TO HIS WORKMEN.

Are you sure that you are fully protected in this connection? We will be most happy to give you the benefit of our expert advice.

THE LICENSES AND GENERAL INSURANCE CO., LTD.

Established 1890. 24, 26 & 28, MOORGATE, LONDON, E.C.2. *Funds Exceed £650,000.*

WE SPECIALISE IN

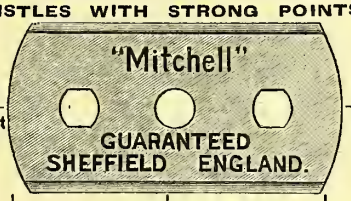
GILLETTE DARWIN
VALET ROLLS
EVER-READY SOUPLEX

Blades and Razors.

Let us send you Illustrated Price List.

A. FRANKS & CO. 12 BARTLETT'S BLDGS. LONDON, E.C.4 PHONE: CENTRAL 3640.

BRISTLES WITH STRONG POINTS.



Lasts Longer Wonderful Edge Every Blade Guaranteed

THE "MITCHELL" BLADE

1/6 for 6 (Made in Gillette and Autostrop Patterns) **50% Profit for You.** WE SUPPLY TESTIMONIALS THAT TELL. SHOWCARDS THAT SELL. 3/- for 12

R. S. MITCHELL, Unity Works, Langsett Rd., SHEFFIELD.

"LAUREL"
SAFETY RAZOR BLADES.

ALSO AUTO-STROP TYPE



TRADE WITHIN THE EMPIRE

Retails at a less price than any on the Market. Satisfaction Guaranteed. Send for free samples.

Manufactured by

GEO. H. LAWRENCE, 32 EYRE STREET, SHEFFIELD.

Phone: 1071 Cent. Telegrams: "Laurel Sheffield."

G. B. KENT & SONS, LTD.

Are known the World over as the Largest Manufacturers of

BEST BRITISH BRUSHES

Please write for full Particulars to—

75 FARRINGDON ROAD, E.C.1.

DEMONSTRATE FURSAC TO ASTONISHED EYES



FURSAC

IS THE

Aristocrat amongst Powder Puffs

EVERY WOMAN WANTS ONE

In 8 WEEKS *we sold* 31,200
but there are still 22,336,709 *women in Great Britain to be supplied*
so
We are spending £500
in National Press Advertising during Ten Days before CHRISTMAS
to tell them about

FURSAC

this Christmas will be a *Fursac Christmas*

Always have "FURSAC" on the counter with showcard or you lose sales. Demonstrate a "FURSAC" and you make SALES CERTAIN. Additional showcard with direct Christmas appeal now available on application.

Order FURSACS *Now*

POWDER CANNOT SPILL
NO STRUGGLING TO STUFF PUFF BACK INTO BAG
IT GLIDES IN AND OUT

In Fine Leather, 2/6, 3/6, and 5/- each, Retail; 20/-, 28/- and 40/- doz. Trade.

In Silk Brocades, 4/6 each, Retail; 36/- doz. Trade.

Of usual Wholesale or direct from Solport Bros. Ltd., Goswell Road, E.C.1



DEMONSTRATE FURSAC TO ASTONISHED EYES

H. GORDON (LONDON), LTD.

8 City Road, London, E.C.1

DRUGGISTS' SUNDRIES & SURGICAL RUBBER GOODS

WHOLESALE AND EXPORT ONLY.

Specialities: **"GORDO" SOOTHERS IN EVERY STYLE**

CARDED 1, 2 and 3 DOZENS.



TRADE MARK

"GORDONIA" ALL RUBBER SOOTHERS

EACH IN CARTON.

"GORDONIA" RIBBED BOTTLE TEATS

EACH IN CARTON.

"GORDONIA" FEEDING BOTTLE OUTFIT

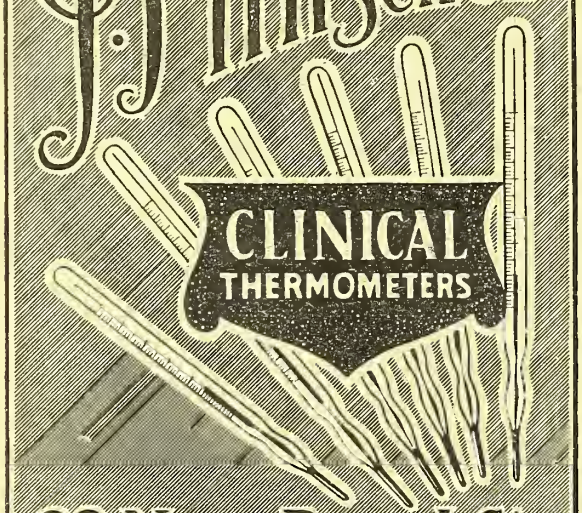
BOTTLE, TEAT, VALVE AND BRUSH COMPLETE IN BOX.

QUALITY UNSURPASSED. **COMPETITIVE PRICES.**

APPLY FOR SAMPLES AND PRICES.

Telephone: Clerkenwell 1714 and 1715. Telegrams: "Gordonotus, London."

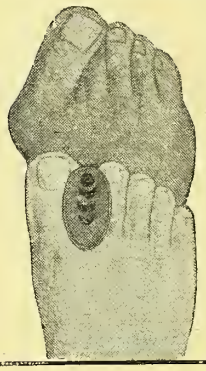
J. Pilfischer.



88, New Bond St., London, W.1.

Established 1843

Dr. SCHOLL'S TOE-FLEX



Is the recognised corrective device for crooked big toes, bunions, enlarged, painful joints and overlapping toes. Its enormous sale is being continually increased by a steady flow of national advertising in all the most widely circulated newspapers and magazines. Dr. Scholl's Toe-Flex shows a satisfactory margin of profit. Made of pure Para rubber in three sizes. Retail price, 2/- each.

Write to-day for full particulars.

The SCHOLL MFG. CO., LTD.
Granville Square, London, W.C.1.

BUY YOUR

BOTTLES, JARS, PILL TUBES

PLAIN, CORKED & CAPPED

AND

VACUUM FLASKS

AT LOWEST PRICES

FROM

C. MELIN & CO. 7 INDIA STREET LONDON, E.C.3.

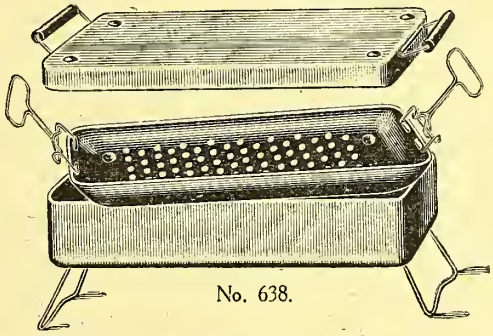
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Manufacturers of **136 Borough High St.,**
Telephone : Hop 5645-6.

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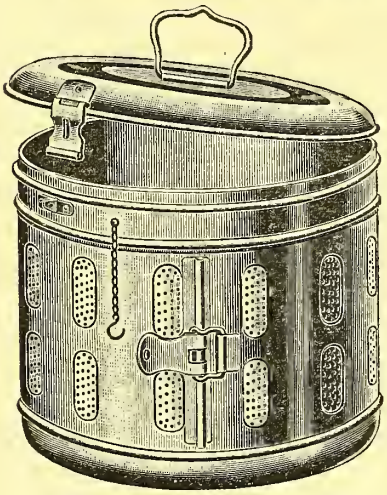
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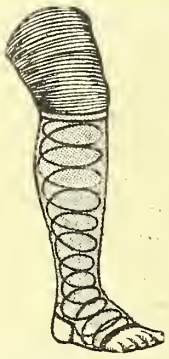
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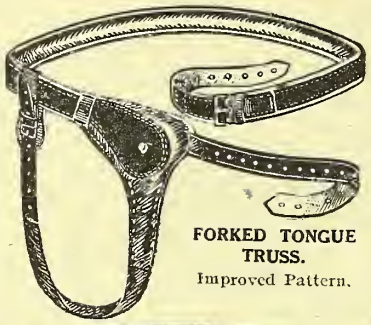


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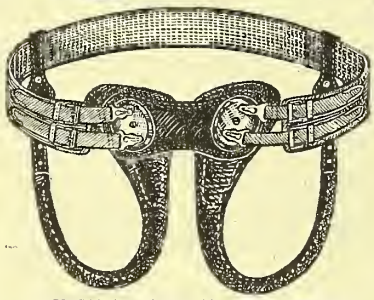
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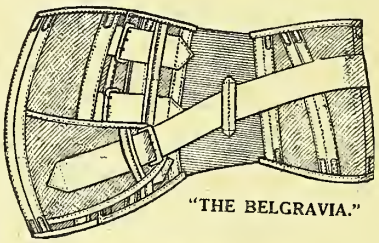


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Improved Pattern.

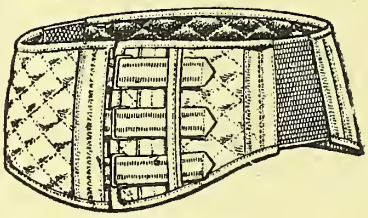


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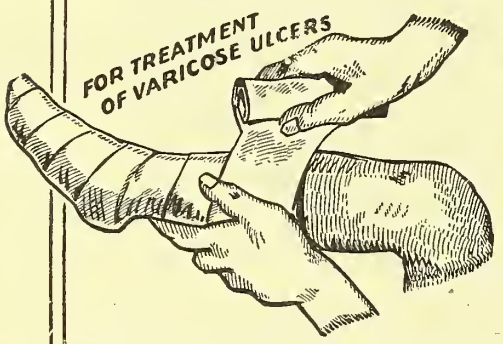
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VARICOSAN-BANDAGE
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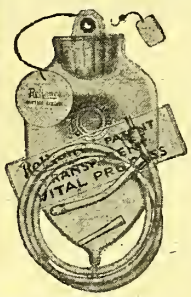
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The Public know

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It is a line tested and proved in all parts of the world, and every sale means a satisfied customer.

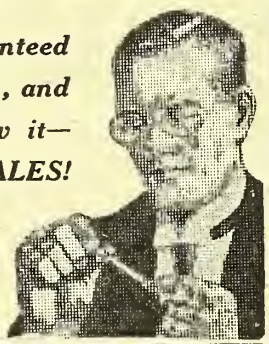
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of Beef, Mutton or Chicken consists solely of the juice of the finest meats, prepared with the greatest care under the most hygienic conditions.

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"Berina"—the most profitable line

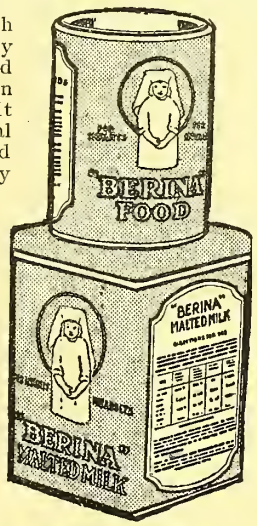
THE NEAREST FOOD TO HUMAN MILK

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The Proprietors wish these Foods to be established on their merits and not through extravagant claims and press advertising.

The Proprietors will be glad to send free sample of the "Berina" Food to Chemists on receipt of postcard.

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Prepared only by

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Tonic, Restorative, Digestive Wine.

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DOSE : One wine-glass after the two principal meals.

Recommended by—
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"For more than thirty years St. Raphaël Wine has been exclusively prescribed, with success, in the Paris hospitals as a pure tonic, by eminent physicians, such as Magendie Ros on Chomel, Velpeau, Requin, Monneret, Trousseau, Grisolle, Laënnec, &c."—*Union Médicale*, May 8 and June 12, 1873.

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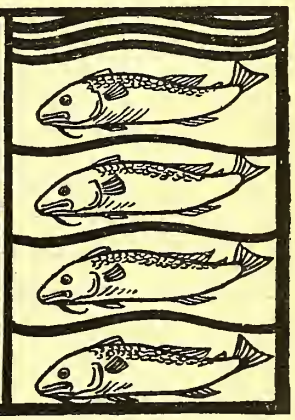
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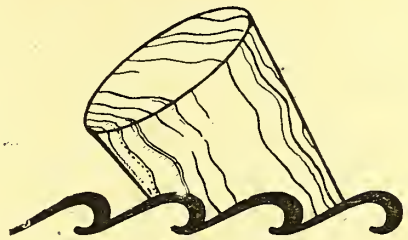
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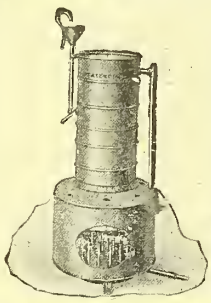
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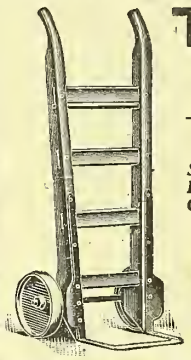
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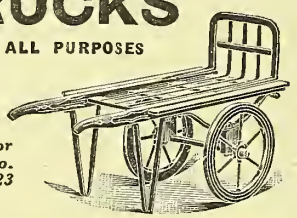
Extraordinarily efficient and economical. Made for gas, steam, oil or coke fire heating.

Full particulars and prices free on application

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TRUCKS
FOR ALL PURPOSES





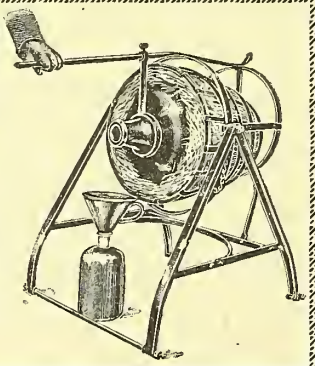
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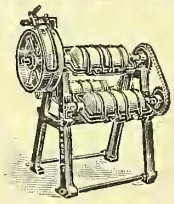
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The Carboy can be tipped to any position with one hand.



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BALL GRINDING MILLS

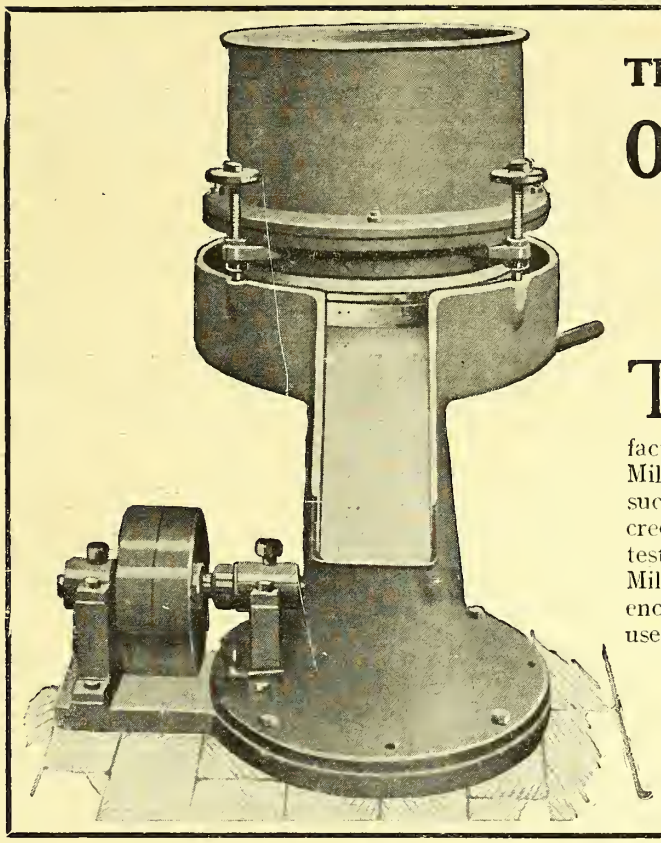


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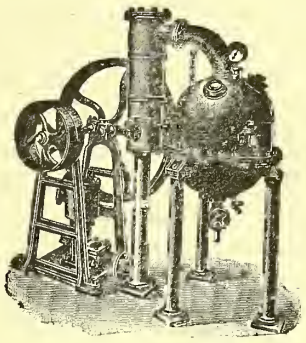
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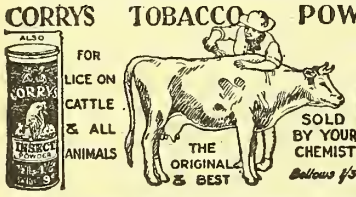
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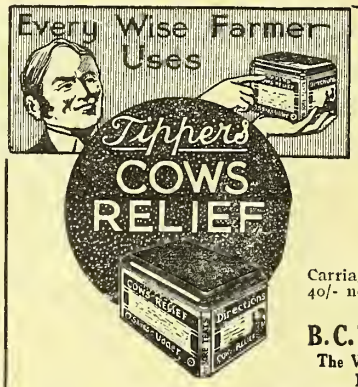
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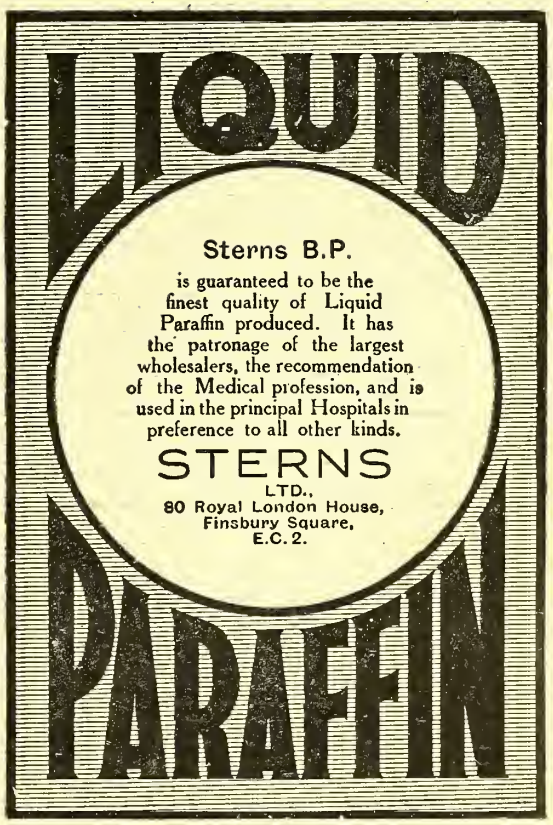
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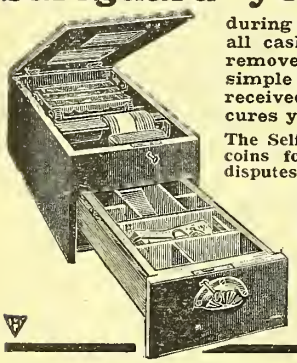
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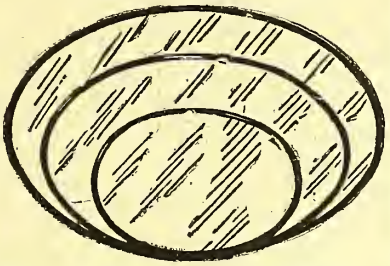
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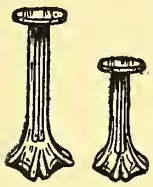
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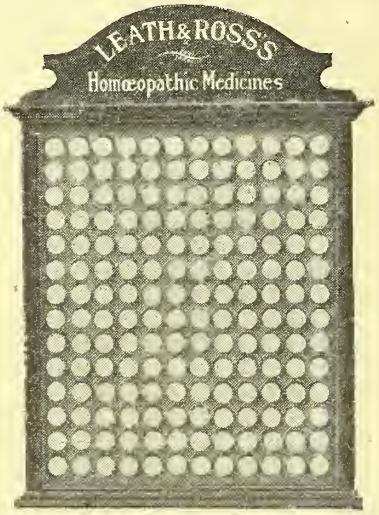
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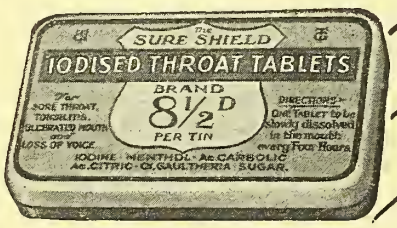
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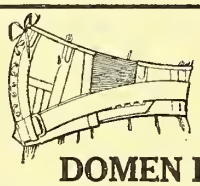
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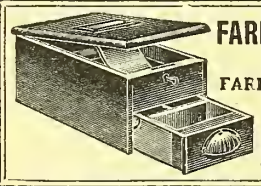


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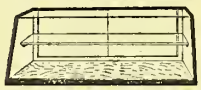


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A WEEKLY JOURNAL OF PHARMACY AND OF THE CHEMICAL AND DRUG TRADES

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Coming Events

This section is reserved for advance notices of meetings or other events. These should be received by Wednesday of the week before the meetings, etc., occur.

Tuesday, December 28

Royal Institution of Great Britain, 21 Albemarle Street, W.1, at 3 p.m. Juvenile Christmas Lectures, by Professor A. V. Hill, on "Nerves and Muscles: How we Feel and Move." (1) Tuesday, December 28, "Nerves and the Messages They Carry."; (2) Thursday, December 30, "Muscles and How They Move"; (3) Saturday, January 1, "The Heart and some other Muscles."

Wednesday, December 29

London (South-Western) Chemists' Association, Stanley's Restaurant, 237 Lavender Hill, S.W.11. Christmas party.

NATIONAL ASSOCIATION OF WOMEN PHARMACISTS.—A New Year dance will be held on January 6, 1927, at the Palace Hotel, Bloomsbury Street, London, W.C.1. Tickets (7s. each) from Miss Dennis Hayes (secretary), 5 The Park, Forest Hill, S.E.23.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN (EAST METROPOLITAN BRANCH).—A New Year party and social will be held on January 6, 1927, at Slater's Restaurant, 192 Oxford Street, W.1, at 6.30 p.m. Tickets (3s. 6d. each) from Mr. W. E. Gaze (secretary), or members of the Committee, before January 3.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN (SOUTH-EAST METROPOLITAN BRANCH).—A social and dance will be held on January 6, 1927, at the Town Hall, Woolwich, at 7 p.m. Tickets (3s. 6d. each) for additional guests. One ticket free. Apply to Mr. Turner, 16 Inchmery Road, Catford, S.E.6, before December 28.

English and Welsh News

The Editor will be obliged if subscribers will send him marked copies of newspapers containing items of interest for insertion in this or other news sections.

Government Committee on Pharmacy Acts

The Lord President of the Council, on the nomination of the Secretary of State for Scotland, has appointed Mr. R. N. Duke, of the Scottish Office, to be a member of the Poisons and Pharmacy Acts Committee, in place of Mr. W. A. C. Goodchild of that department.

Preservatives Regulations

The Ministry of Health have issued a circular to Sale of Food and Drugs Act authorities, port authorities, and certain other sanitary authorities in England and Wales, referring to the Public Health (Preservatives, etc., in Food) Regulations (see *C. & D. Diary*, 1927), giving dates on which the principal regulations as now amended will come into operation, which are as follows:—

All foods except those specified below—January 1, 1927.

Bacon, ham, egg yolk and articles of food containing preservative necessarily introduced by the use in their preparation of preserved margarine—July 1, 1927.

Butter, cream and articles of food containing preservative necessarily introduced by the use in their preparation of preserved bacon, preserved ham, preserved egg yolk, or preserved cream—January 7, 1928.

Articles of food containing preservative necessarily introduced by the use in their preparation of preserved butter—July 1, 1928.

Contracts

The following tenders have been accepted by the bodies named:—

Derby Guardians.—Richard Daniel & Son, drugs.

Lewes Guardians.—Boots, Ltd., drugs; B. Pratt & Co., dressings.

Liverpool

The annual children's party of the Liverpool Chemists' Association will be held at the Royal Institution, Colquitt Street, on January 5, 1927, from 4 o'clock to 9.30 p.m

Chemists report that the Christmas trade has been good, particularly in small articles for presents. Their shops presented a very attractive appearance, special displays of perfumery, safety razors, etc., being noticeable.

The second annual hot-pot supper at the Bear's Paw Restaurant, Lord Street, on December 15, in connection with the Merseyside Branch of the League of Ex-Service Pharmacists, was a great success. Mr. Frank Wokes (chairman) presided over a gathering numbering eighty members and friends. On the proposition of Mr. W. J. Tristram, seconded by Mr. Frank Snow, a resolution was passed expressing satisfaction at the work done at headquarters and the progress made, and assuring the League of the energetic support of the Merseyside Branch. Mr. Wokes announced that the annual meeting of the branch would be held on January 15.

Manchester

On December 15 the Manchester College of Pharmacy football team played against Salford Royal Technical School at Salford. The game resulted in a draw of five goals each; scorers for the College were Mower (2), Compston, Schofield and Cundy. Results to date are: Played 5, won 4, drawn 1.

The Northern Photographic Exhibition, which has just been opened in Manchester City Art Gallery, will continue for six weeks This is the tenth Northern Photographic Exhibition since 1904. Manchester and Bradford Societies have co-operated on this occasion. Nearly half the total number of exhibitors (131 out of 278) are residents in the North; and the claim that their work makes as wide an appeal and reaches as high a standard as that of the exhibitions in London appears to be justified.

The annual whist drive and dance of the Manchester College of Pharmacy was held in the Women's Union, Lime Grove, recently; a very successful evening was enjoyed by over a hundred guests. Mr. H. Brindle thanked the committee for making the reunion such a

brilliant success, and also welcomed the many old students present. Mr. Watson replied on behalf of the committee. The M.C. duties were carried out by Mr. Watson for the whist, and by Mr. Maskell for the dancing.

Sheffield

Most chemists will close from Friday night, December 24, until Tuesday morning, December 28, except for emergencies.

A branch of the Brightside and Carbrook Co-operative Society, Ltd., is to be opened on the Intake estate. Chemists experience some difficulty in securing business premises on reasonable terms in these newly-developed areas.

Miscellaneous

BURGLARY.—The premises of Mr. V. J. Woolls, chemist and druggist, Tivoli Road, Margate, were broken into on December 9 and some money was stolen.

POISONINGS.—Among fatal poisonings recorded since our last report are suicides by means of spirit of salt (London) and hydrocyanic acid (Farnborough). In the latter case a medical witness at the inquest expressed the opinion that a tablespoonful of the acid would kill sixteen people.

CARILLON IN OLD BOND STREET.—The new retail premises of J. & E. Atkinson, Ltd., in Old Bond Street, London, W.1, include among their attractions a carillon in the tower above the building. This is the first carillon set up in London, and is playable in three distinct ways.

UNLAWFUL POSSESSION.—At Eastbourne Police Court, on December 20, Mrs. Annie Adams pleaded "Guilty" to a charge of being in unlawful possession of morphine sulphate. It was stated for the prosecution that the defendant obtained prescriptions for the drug from several doctors without disclosing to each but the first of them that she was already receiving treatment; her daily supply at one time averaged 3.87 gr. The defence was that she had become an addict through a mistaken diagnosis twenty-five years ago. The defendant was bound over for twelve months.

IN THE COURTS.—At Bristol, on December 15, three boys were charged with stealing, among other things, a safety razor, value 25s., from the shop of Mr. Thomas Buxton, chemist and druggist, Queen's Road. Two were ordered Borstal treatment, and one was sent to an industrial school.—In Bloomsbury County Court, London, recently, the Pharmaceutical Society of Great Britain recovered the sum of £1 11s. 6d., with costs, from Mr. Peter S. Dunlop, chemist and druggist, Brimington, he having ceased to pay his annual subscription as a member and having failed to return his membership certificate.

FALSE PRETENCES.—At Penrith, on December 14, John Halstead, Burnley, described as a commercial traveller, was sentenced to four months' imprisonment for having obtained by false pretences a cheque for £5 from R. Philip Pollard. It appeared that Pollard answered an advertisement purporting to have been issued by "J. Halstead & Sons, manufacturing chemists, Burnley," offering a situation as traveller, and paid the deposit. A detective-inspector stated that the defendant was not a chemist; there was no firm of the name given; the house was in a very poor quarter, and had no laboratories. Three packets of powder was all the "stock" on the premises. The stuff was made of dry soap and boric acid, scented with rosemary.

Scottish News

Brevities

It is proposed to hold a shopping week in Airdrie early in the New Year.

A. de St. Dalmas & Co., Ltd., surgical dressing manufacturers, Leicester, have appointed Mr. W. G. Baker as their representative in Scotland.

A pane of glass was removed and some bottles of disinfectant stolen from the premises of Mr. J. Anderson, chemist and druggist, Commercial Street, Dundee, recently.

Irish News

Pharmaceutical Society of Northern Ireland

The annual fee for the licence of pharmaceutical chemist, chemist and druggist, and registered druggist is now due. New licences must be taken out before January 1. The fees are: Pharmaceutical chemists, £3 3s.; chemists and druggists and registered druggists, £2 2s. The registration fee of 5s. is not an annual charge, and need be paid only by those who are not already registered. Registered druggists who have qualified as pharmaceutical chemists at the recent Northern Ireland examinations must pay the registration fee before they can obtain the pharmaceutical chemists' licence.

Brevities

Mr. J. A. Woodside, Ph.C., has been elected President of the Ballymena Musical Festival Association.

At Coney Island, near Ardglass, Mr. A. Neill, auctioneer, died recently from strychnine poisoning.

Mr. J. J. Roche, Ph.C. (Roche & Co., O'Connell Street, Dublin), and Mr. P. D. Larkin, Ph.C. (Byrne's Medical Hall, Drogheda), have been elected to fill vacancies in the council of the Pharmaceutical Society of Ireland.

Wm. J. Byrne and Walter W. Finn were each sentenced at Dublin Central Criminal Court on December 17 to nine months' imprisonment each, with hard labour, on the charge of having defrauded their employers, Kodak, Ltd. (*C. & D.*, December 18, p. 890).

Summoned by the Pharmaceutical Society of Ireland to Edenderry District Court for acting as a pharmaceutical chemist without being qualified, Peter Dowling, Edenderry, was recently fined £5. It was admitted he was not qualified, but in his shop he had employed a chemist fully qualified, and he himself intends to take out his final examination in two years.

Belfast

On December 18, when the premises of Mr. Joseph Moffet, R.D. and subpostmaster, 225 Donegall Road, were opened it was found that the safe was missing. It was later found by the police on vacant ground, having been forced open and £190 in cash and notes stolen. No arrest has yet been made.

The following tenders have been accepted by the Tuberculosis Committee of Belfast Corporation: J. Clarke & Co. (Successors), Ltd., cotton wool, white bleached calico; F. Storey, Ltd., absorbent gauze; W. G. Taylor, bandages; Fassett & Johnson, Ltd., crêpe bandages, plaster and oiled silk; R. Bailey & Son, Ltd., batiste and carbolic tow.

Bankruptcy Reports

Re James Walker, 19 and 21 Grange Mount, Birkenhead, chemist and druggist.—The receiving order was made on debtor's own petition. The statement of affairs shows liabilities £975 14s. 1d., with assets estimated at £379 18s. 4d. (net, £341 0s. 2d.). The following are among the creditors: Evans Sons Lescher & Webb, Ltd., £32; John Thompson, Ltd., £50.

Re Frederick Lee Giddings, 37 Brondesbury Road, London, N.W.—Application for discharge was made, on December 17, at the London Bankruptcy Court. Mr. Wheeler, official receiver, reported that the applicant failed in March 1925, with provable debts £1,085 and assets expected to produce £80. He was a director of Gerald Bromage & Co., Ltd., merchants in perfumery materials, etc., until the company went into voluntary liquidation in August 1922, and then started business on his own account. On April 5, 1923, he entered into a contract to purchase 100 barrels of American turpentine, but failed to carry through the contract, and judgment for £328 was given against him. He had lost £1,400 by speculations in produce, and the application was opposed by the official receiver chiefly on the ground of rash and hazardous speculations. The registrar suspended the discharge for three years.

Legal Reports

Registered Druggist Fined.—In the District Court at Edenderry, King's County, recently, Mr. Peter Dowling, R.D., was summoned by the Pharmaceutical Society of Ireland for acting as a pharmaceutical chemist without being qualified. It was admitted that Mr. Dowling was not qualified, but it was stated that in his shop he employed a fully qualified chemist. He had been advised that it was necessary to form a limited company to act legally, and the company would be formed shortly. The defendant was fined £5.

Dismissal Claim Succeeds.—In Cambridge County Court, on December 15, Judge Farrant concluded the hearing of the case in which Mr. Frank Bridgwood, dispenser and salesman, sued George Beall & Son, chemists, Sidney Street, to recover the sum of £27 for alleged wrongful dismissal (*C. & D.*, December 4, p. 821). Mr. H. M. Finch, who appeared for the plaintiff, informed the judge that the defendants had agreed to judgment for £27, the full amount claimed (including the claim for holiday money), with costs, and they unreservedly withdrew the imputations which they had made against the plaintiff. Judgment was entered accordingly.

Meat and Malt Wine: Appeal.—Before a King's Bench Divisional Court in London (consisting of the Lord Chief Justice and Justices Talbot and Salter), on December 16, Mr. W. S. Bowker, a Salford inspector under the Sale of Food and Drugs Acts, appealed against a refusal of the Salford stipendiary magistrate to convict Mr. F. J. Woodroffe, Broughton, of, it was alleged, selling to the prejudice of the purchaser a food, viz., a bottle of meat and malt extract in wine, that was not of the quality demanded, contrary to the Sale of Food and Drugs Acts (*C. & D.*, August 28, p. 389). Mr. Bowker also appealed against the refusal of the magistrate to convict the Premier Drug Co., Ltd., manufacturers of "Gold-Vin" wines, for aiding and abetting. Mr. T. Eastham K.C., for the appellant, said the inspector bought from Mr. Woodroffe a bottle of meat and malt wine, paying 4s. 6d. for it. It was found to contain 81.2 per cent. of water, 16.4 per cent. of sugar and 2.4 per cent. of extractive matter. The analyst stated that the whole thing, including the bottle, cost 6d. to produce. A genuine meat and malt wine should contain at least 5 per cent. of a mixture of malt and meat extract, otherwise it was little more than a flavoured cordial. For the inspector it was argued that the use of the word "wine" implied the use of a fermented grape juice, and the advertised presence of malt and meat made it a food. As the standard of meat and malt had not been reached in the wine, it was sold to the prejudice of the consumer. For the respondent it was argued that there was no set or recognised standard by which the percentage of meat and malt was to be used in the wine, and that in the circumstances there had been no contravention of the Act. The magistrate, acting on a Scottish authority cited to him, decided that the proceedings could not succeed and dismissed the summons. Mr. Eastham said the analysis displayed a total absence of wine and a marked deficiency of meat and malt extract. If appellant was wrong and there was no fixed standard for such a thing as this, then people could ignore the Acts and sell any inferior article. Mr. Eastham explained that the Scottish decision the magistrate relied on was fifty years old, although there were more recent authorities which supported the appellant's argument that when the Act did not prescribe a definite standard the Court should set one on the evidence. Mr. Wingate Saul, K.C., for the respondent, asked that the case should go back to the magistrate for reconsideration and restatement. The Lord Chief Justice, in announcing that the Court sanction the application, said that the stated case was not sufficiently full of particulars. Their lordships thought the magistrate had fallen into error when he said there was no recognised standard of quality to be possessed by the article. It was his duty to lay down for himself a standard in the absence of a specified one in the Act, and he had not done that, although there was evidence before him. It was not suggested that there should be any further hearing by the magistrate. The appeal affecting the Premier Drug Co. would be postponed until the other had been reconsidered.

New Companies
and Company News

P.C. means Private Company and R.O. Registered Office

STARKEY & SON, LTD. (P.C.).—Capital £1,000. Objects: To carry on the business of chemists, druggists, dentists, opticians, photographers, etc. Director: T. Starkey, 31 Sterndale Road, West Kensington, W.14, druggist. R.O.: 104 Holland Park Avenue, London, W.11.

CHEMICALS AND FERTILISERS, LTD. (P.C.).—Capital £5,000. Objects: To carry on the business of importers, exporters and manufacturers of and dealers in fertilisers and chemicals of all kinds, and particularly in nitrates and nitrogen products of all kinds, iodines, acids and other products, etc. R.O.: 41, Eastcheap, London, E.C.3.

M. FREEMAN'S OPTICAL SERVICE, LTD. (P.C.).—Capital £1,000. Objects: To carry on the business of manufacturing opticians and manufacturers of and dealers in optical, anatomical and surgical appliances, chemists, druggists, etc. Director: M. Freeman, 105 High Street, Camden Town, N.W.1, optician.

KHASANA, LTD. (P.C.).—Capital £1,000. Objects: To carry on the business of manufacturers and purveyors of perfumes, powders, soaps, creams and other toilet requisites, pharmaceutical manufacturers and general chemists and druggists, etc. Solicitors: Buckeridge & Braune, 3-4 Clement's Inn, London, W.C.2.

BENGUE & CO., LTD. (P.C.).—Capital £1,500. Objects: To carry on the business of chemists, druggists, drysalters, oil and colour men, manufacturers of and dealers in toilet preparations and requisites and preparations for the teeth and hair, etc. The directors are: F. Bengue and J. Bengue. Solicitor: J. E. M. Crowther, 23 Abingdon Street, Westminster.

E. FISHER'S, LTD. (P.C.).—Capital £1,000. Objects: To carry on the business of chemists, druggists, patent medicine proprietors and vendors, stationers, wine and spirit merchants, opticians, tobacconists, dealers in photographic and wireless goods, etc The directors are: Emily Fisher and Catherine F. Fisher. R.O.: 40 Sherrard Street, Melton Mowbray.

DALTON MOTOR SPIRIT CO., LTD. (P.C.).—Capital £2,000. Objects: To adopt an agreement with G. W. Smith, and to carry on the business of petrol distributors as formerly carried on by the vendor at Long Lane, Huddersfield, and that of manufacturing chemists, drysalters, tar distillers, manufacturers of and dealers in benzol, toluol, naphtha, oils, creosote, prepared tar and its derivatives, acids, alkalis, salts, etc. The directors are: G. W. Smith and H. Calvert. R.O.: Long Lane, Huddersfield.

MIRUS, LTD. (P.C.).—Capital £500. Objects: To carry on business as hair specialists, specialists in the application of hygienic complexion treatment, ladies' and gentlemen's hairdressers, manicurists, masseurs, chiropodists, wigmakers, dyers, chemists, tricologists, manufacturers of and dealers in toilet requisites and specialities, perfumes, powders, soaps, cosmetics, tooth pastes and powders, hair dyes and washes, preparers of and dealers in pharmaceutical products, etc. The directors are: Doris M. King and H. C. King. R.O.: 57 Carleton Road, Tufnell Park, London, N.7.

JOHN BELL & CROYDEN, LTD.—N. D. Grundy, 90 Cannon Street, London, E.C., was appointed receiver and manager by Order of Court dated December 10.

CANNING TOWN GLASS WORKS, LTD.—At a meeting held in London on November 15 it was resolved that this company be wound up voluntarily. Mr. W. B. Anderson, 40-43 Norfolk Street, London, W.C.2, was appointed liquidator.

ASSOCIATED PERFUMERS, LTD.—The statutory first meetings of creditors and shareholders were held at the offices of the Board of Trade, London, W.C., on December 16. A compulsory winding-up order was recently made on the petition of the Perfumerie Houbigant S.A. The meetings were formally adjourned for a week, and it was intimated that the liquidation would then remain in the hands of the official receiver.

Modern Physico-Chemistry

and its Pharmaceutical Applications

By W. A. Whatmough

XLIX. Structures in Space—IV

ACCORDING to the scheme herein, structures in space are composed of atomic nuclei linked together, or made "electrically" neutral by the "pairing" of valency electrons. In a list of elements with *atomic numbers* from 1 to 16, blanks occur for elements of *atomic weights* 2, 3, 5, 8, 13, 15, 17, 18, 21, 33, 34. Thus gaps appear in the sequence of atomic masses referred to the proton or hydrogen unit of mass 1. This contrasts greatly with the completeness of elementary increments by one nuclear electron at a time (with a mass value of about 2). The existence of isotopes is utilised to explain the unevenness of atomic weights (e.g., chlorine, at. wt. 35.46, is a mixture of Cl^{35} and Cl^{37}). However, the mass

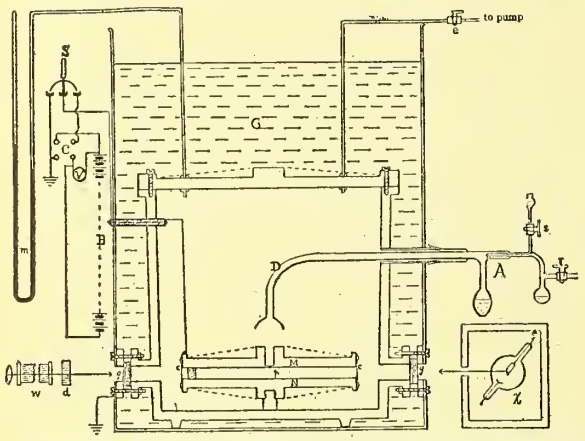


FIG. 71.—Millikan's apparatus for determination of the charge upon an electron. Droplets of oil from an atomiser at A pass along the tube D and fall under the influence of "gravity" through fine holes in the upper plate M. On illumination the droplets glisten like stars when viewed through the eyepiece W. The two brass plates M and N are insulated, and these can be maintained at a potential difference of several thousands of volts by means of the reversing switch C. This electric field can therefore be used to cause a droplet to rise against gravity or to accelerate its fall. The increments in velocity of a droplet corresponds to gain of 1, 2, or more electrons. Like unit charges are produced by ionisation with *x*-rays from the *x*-ray tube at Z, the actual capture by the droplet of an electron being evident by its changed velocity.

spectograph measures displacement masses in space, and isotopes may arise by the breaking of bonds between atomic nuclei leaving these with a variable number of valency electrons attached. Experimental evidence contradicts the older conventions of invariable atoms and molecules with sharply defined separating surfaces, and the trend is to merge these into structures in space with physico-chemical characters determined by the strength of the chemical bonds linking together atomic nuclei in space; as well as the physical interaction of the structure as a whole with ethereal pulsations.

The conception that the number of interlocked ring electrons represents the atomic number of an element, and is characteristic of its individuality in complex structures in space, is strongly supported by *x*-ray spectra. The *same* *x*-ray spectrum of iron is emitted by metallic iron, magnetic oxide of iron, ferric oxide, ionised iron, and iron in an unionised state, viz., by Fe, Fe_3O_4, Fe_2O_3, $FeSO_4$, $K_4Fe(CN)_6$. The experiments of Millikan (Fig. 71) are regarded as definite proof of the existence of the (free) electron carrying an invariable unit charge of electricity. The attachment of a free or valency electron to a droplet falling in space can be likened to the gain of an ethereal propellor. This drives the drop upwards or downwards, according to the direction of the ethereal wind. Hence reversal of the electrical field (inscription to Fig. 71) corresponds to change in direction of ethereal pulsating jets (incidentally the existance of a real potential is evidence of resistance to a fluid flow). A magnetic field consists of magnetic shells of expanding and contracting waves, and the separation atoms of silver distilled between a magnetic field into two traces agrees with two opposite types of rotatory motion in space. Furthermore, the absorption spectra of gases and liquids show that atoms and molecules retain under all conditions their sensitivity and selectivity to ethereal pulsations. The colour of a copper ion is an interaction of light with a loosely-bound electron not present in the colourless ion. However, both matter and space are concerned in the phenomenon, which requires an ethereal flow and a plastic rotating electron. Always as with an induction motor, the pulses in the stator and rotor are reversible, and these respond to definite cycles of frequencies, and quanta may well be harmonics (or integral multiples of the fundamental frequency). Nor can there be any doubt that the free electron, atom, and molecule lose their separate identity in uniting into structures in space, through which a (electromagnetic) flow in space results in the product of pulsating jets of ether; which ethereal friction consumes energy and generates heat-rays. An electrical current is more likely to consist of the flow of ether past vibratory matter, the pulsations being a consequence of electronic oscillation. Likewise ethereal friction tears electrons from the free surface rather than that an actual flow of free electrons occurs through the space lattice of metals, etc., as usually assumed. Indeed, electrons can be "evaporated" as "thermions" from the surface of metallic wires until these become many times finer than a filament made by any other method. Likewise, ions in solution are converted into neutral atoms and deposited as metals or evolved as gases by gain or loss of an electron. In all cases the liberation, migration, and union of these binding electrons constitute an electrical current, and are a consequence of the flow of ethereal energy. The intermittent forward flow represents the Poynting flux of electromagnetic energy conjoining expanding magnetic shells with unidirectional electrical pulses (Article XXX).

The diversity of the radiations emitted by a single valency electron show that this must be plastic in its orbital motion, whereas from the simplicity of the *x*-ray spectra inner electrons are comparatively fixed in form. The increase in frequency of characteristic *x*-ray radiation with atomic number suggests that the balancing of strain imposed upon interlocking electrons is met by diminution in size of the electron so that the time of transit of a pulse around the ring will be less. Modern investigations have destroyed the dogma of the atom as an impenetrable hard mass in the form of an unchanging and inviolate sphere. Despite the lack of precision of atomic boundaries due to the union of free valency atoms and atomic nuclei into structures of space, one can still define the characteristics of electrons, atoms, molecules as components of gas, liquids, and solids, wherein conjunctions of atoms provide endless types of structures, whether space lattice of crystals or the interspaces of living colloids. Starting with the (ring) electron as the primary unit of matter there can be distinguished :—

Free or Valency Electron, or the electrochemical unit of matter, the hydrogen ion being the equivalent thereof. [The inertness of substances such as hydrogen and clorine gases subjected to intensive drying might well correspond to absence of active valency electrons.]

Nuclear Electrons are distinctive of the part of an atom which remains unchanged in its various transpositions during union with other atoms.

An *Atom* is a type of structure distinguishable only by the arrangement of its interlocking electrons, the number of which correspond to its atomic number.

Molecules are structures in gases and liquids consisting of mobile units of matter formed of atoms linked together by valency atoms, the identity of the atom itself being lost by the sharing of valency electrons. Neutral gaseous atoms are moecular in that they possess valency electrons.

Space lattice consists of atoms linked together by valency electrons, but the molecule has also lost its separate identity. In single or perfect crystals of metals these are precisely spaced, and heat and electrically conductivity is a maximum owing to lessened resistance to free flow of space through lattices more open than in ordinary metals of irregular crystalline character.

The underlying endeavour has been to unite three otherwise incomprehensibles—space, time, and matter—into a single physico-chemical equilibrium.

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PHARMACY

Menthol Cones.—Mexican Pharmacopœia, Vth edition: Melt at a gentle heat 9.9 grams of spermaceti, and add, when on the point of solidifying, 90 grams of menthol and 0.05 gram of oil of mustard; mix and pour into moulds.

Tænifuge Emulsion.—Mexican Pharmacopœia, Vth ed., 1926:—Pound 5 gm. of pumpkin seeds with 25 gm. of sugar, adding a small quantity of water, until a homogeneous paste results. Add 5 gm. of extract of male fern and sufficient water to produce 100 c.c.

Cold Cream.—Rumanian Pharmacopœia, IVth ed., 1926:—

White wax	8 grams
Spermaceti	15 grams
Sesame oil	62 ,,
Rose water	15 ,,

Cold Cream.—Mexican Pharmacopœia, Vth ed., 1926:

Beeswax	60 grams
Spermaceti	60 grams
Stearin	60 ,,
Sesame oil	440 ,,
Rose water	100 c.c.
Oil of geranium	q.s.

Liquid Dentifrice.—Mexican Pharmacopœia, Vth ed., 1926:—

Oil of anise	1 c.c.
Tincture of cinnamon	50 c.c.
Tincture of clove	2.5 c.c.
Tincture of cochineal	15 c.c.
Oil of peppermint	2.5 c.c.
Alcohol (80 p.c.) to produce	1,000 c.c.

Davila's Anticholera Tincture.—Rumanian Pharmacopœia, IVth ed., 1926:—Macerate 17 gm. of saffron with 1.050 gm. of alcohol (70 p.c.) for three days, then add 17 gm. of opium, 70 gm. of cinnamon, and 70 gm. of rhubarb, and continue the maceration for a period of seven days. Filter, add to the filtrate sufficient alcohol (70 p.c.) to produce 834 gm., then add 165 gm. of oil of peppermint.

Camphor Balls.—Rumanian Pharmacopœia, IVth ed., 1926:—

Ammonium chloride	2 grams
Alum	4 ,,
Camphor	4 ,,
Lead carbonate	30 ,,
Calcium carbonate	60 ,,

Mix; add sufficient water to form a homogeneous paste, which is then divided into balls weighing each 25 gm.

Saponaceous Dentifrice.—Mexican Pharmacopœia, Vth ed., 1926:—

Medicinal soap	60 grams
Calcium phosphate	100 ,,
Orris root	25 ,,
Grey cinchona bark	25 ,,
Oil of anise, peppermint, and wintergreen aa.	2 c.c.

Mix the powdered drugs with the essential oils, add sufficient glycerin to produce a soft paste, and colour with carmine.

Solution of Ammonium Valerianate.—Rumanian Pharmacopœia, IVth ed., 1926:—Dissolve 3 gm. of valerianic acid in 85 gm. of water and neutralise the solution with ammonium carbonate, adding a slight excess to produce an alkaline reaction. Dissolve in the resulting solution 2 gm. of extract of valerian, add 10 gm. of alcohol (95 p.c.), and make up with water to produce 100 gm.; set aside for 24 hours and filter.

Digitalis Solution for Injection.—Dutch Pharmacopœia, Vth edition (1926):—One gram of powdered digitalis leaves and 8 grams of water are macerated for forty-eight hours, with repeated agitation, at a temperature not exceeding 15° C. Strain, and set the liquid aside, then pour off as much as possible of the clear portion, and filter the rest. The collected, clear liquid is mixed with an equal volume of chloroform, and this mixture is repeatedly and vigoronsly shaken for forty-eight hours in an almost completely filled flask to assist emulsification, whereupon the chloroformic layer, after its separation, is removed. A weighed amount of the aqueous liquid is evaporated on the water bath to the consistence of a firm extract, and sufficient desiccated sodium sulphate is added to this residue to produce a dry powder. Add to this dry powder as much of the chloroformic extract, obtained as described above, as corresponds to the volume of water evaporated, and shake the mixture repeatedly, and vigorously, for forty-eight hours. Filter, ascertain the volume of chloroform, remove the latter by distillation, and triturate the residue with an amount of water, added in small portions, equal in volume to that of the chloroform, add sufficient sterile sodium chloride to produce an 0.8 per cent. solution of the latter; filter, and sterilise by heating to 70° to 80° C. for one hour on three consecutive days. The lethal dose per kilo of cat is 2 c.c.

PHARMACEUTICAL CHEMISTRY

Hexylresorcinol retains its activity unchanged in olive oil solution enclosed in gelatin capsules, according to W. A. Feirer and V. Leonard ("Journal of Pharmacology and Experimental Therapeutics," Vol. 28, p. 395). The contents of the capsules did not show signs of deterioration after storage for a year at ordinary temperatures.

Mercury Benzoate.—Rumanian Pharmacopœia, IVth ed., 1926:—Dissolve 10 gm. of yellow mercuric oxide in 100 gm. of a mixture of glacial acetic acid and 100 gm. of water. Prepare a solution of 14 gm. of sodium benzoate in 100 gm. of water, and add the latter to the solution of mercuric oxide. Wash the resulting precipitate until the disappearance of the acid reaction, then dry it at 100° C. Contains 43.48 p.c. of mercury.

Stabilisation of Liquid Hydrocyanic Acid.—H. Walker (U.S. patents 1,591,899 and 1,591,900) has protected means of preserving liquid hydrocyanic acid by adding a little sulphuric acid and placing metallic strips or gauze in the container which combine with ammonia. Copper, which is appreciably soluble in liquid hydrocyanic acid, is most effective in preventing explosive decomposition, and enables it to be kept at moderate temperatures for several months. Nickel, cobalt, or monal metal are other alternatives.

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Stability of Donovan's Solution.—W. H. Schulze reports ("Journal of the American Pharmaceutical Association," November, p. 963) that the arsenious iodide content of solution of arsenious and mercuric iodide (Donovan's solution) undergoes rapid change by oxidation of trivalent arsenic to the pentavalent form. Light appears to accelerate this change markedly. The change in colour of the solution to a light brown on keeping is due to liberation of iodine. Liberation of iodine apparently does not occur until the whole of the arsenious compound has been oxidised.

Effect of Acidity on Pepsin Activity.—A. Dinger and W. E. Honsinger ("Journal of the American Pharmaceutical Association," October, p. 866) find that pepsin as marketed shows a considerable range of inherent acidity. Tests were made with granular pepsins (1-3000), kept in the dark for two years in tightly stoppered bottles. A sample with high acidity (7.6 per cent. as HCl) developed a strong odour and caked somewhat within a year. The comparison specimen of low acidity (2.43 per cent. as HCl) was still free-flowing and relatively odourless. Digestion tests showed that the high-acid pepsin lost activity at twice the rate of low-acid pepsin.

Cod-Liver Oil Applications.—Professor J. A. Nixon, Bristol, recently described some precautions he had found effective in the Pyrénées against insect bites ("British Medical Journal," II, 1925, 718). His colleague, Dr. A. T. Todd, suggested that quinine might prevent sunburn, and Mr. E. Lloyd (assistant pharmacist at the Bristol Royal Infirmary) told him that cod-liver oil would keep off mosquitoes and other biting flies. The smell of the cod-liver oil may at first be disagreeable, but one gets used to it in a few minutes, and the comfort of being able to go through the Pyrenean forests unbitten and unattended by the usual host of flies is enough to outweigh the disadvantages. Freedom from sunburn added greatly to their enjoyment of the mountains. Prof. Nixon had previously seen how quinine protected from the sun's rays in a case of pellagra under Dr. Todd's care. For travelling they packed the collapsible tube containing the ointment inside one of their climbing boots. The formula is: Quinine acid hydrochloride, 5 parts (dissolved 1 in 2 of water); anhydrous wool fat, 70 parts; cod-liver oil, 25 parts; ionone, q.s. The quinine is dissolved in water and added to the wool fat, next the cod-liver oil is mixed with it, and finally ionone is put in to disguise the smell of the cod-liver oil. Cod-liver oil (it is also pointed out) is as effective for oiling the surface of small ponds, water-butts, and so on, to control the development of mosquito larvæ as paraffin, and does not make the water distasteful to cattle.

Colloidal Lead Solutions.—W. Stenström and M. Reinhard ("Journal of Biological Chemistry," Vol. LXIX, No. 2, p. 607) deals with the preparation of colloidal solutions of lead for intravenous injection in cancer. The best results were obtained by an arc between lead electrodes made by an alternating current of 220 volts and a frequency of 60 cycles. The electrodes consisted of chemically pure lead and were 9 mm. in diameter. From 200 to 400 c.c. of solution were treated at a time, the arcing being continued for about ten minutes. A resistance of 12 ohms was included in the circuit, which permitted a current of 18 amperes to pass when the electrodes were touching. One of the electrode holders could be moved by rack and pinion, and it requires almost continuous adjustment during the arcing process. Colloidal lead solutions were made from Dr. W. B. Bell's formula, consisting of a solution of 0.4 per cent. gelatin and 0.027 per cent. calcium chloride. On arcing, this solution gave fairly good lead sols, but these oxidised easily. The most stable colloidal lead preparation was obtained from gelatin potassium chloride, about 0.04 per cent. of potassium chloride being a favourable concentration with 0.4 per cent. gelatin. Analyses gave 0.22 per cent. of lead in the freshly made lead sol, and 0.21 per cent. after keeping for seven days. The one-week-old lead sol did not have any more toxic effect on mice than the new preparation. Thus the stability of the colloidal lead sols from gelatin potassium chloride solutions is such that it can be distributed and used during one week after its date of preparation, whereas Bell states that his lead sols require making at least twice weekly.

Assay of Atropine in Tablets.—W. P. Edwards and R. E. Schœtzow ("Journal of the American Pharmaceutical Association," Vol. XV, No. 11, p. 967) give the following procedure to avoid low results in assaying mixtures of atropine and milk sugar as tablets or granulations. An accurately weighed portion of sample under test equivalent to 0.0648 gm. (or one grain) of atropine sulphate is placed in a separatory funnel with 15 c.c. of water and 10 c.c. of decinormal sulphuric acid. Allow to dissolve and then add one drop of methyl red indicator. Neutralise exactly with normal solution of sodium hydroxide and add a further 0.5 c.c. of this reagent. Thoroughly shake out with three or four 50-c.c. portions of chloroform. Test one or two c.c. of the last extraction by evaporating to dryness, dissolving in a few drops of dilute acid and adding test solution of mercuric potassium iodide. When extraction is complete, wash the combined chloroformic extracts with 10 c.c. of water, shaking the wash water itself out with 10 c.c. of chloroform. The chloroformic portions are filtered through filter paper into a beaker. The separatory funnel tip, the filter and funnel tip are washed with chloroform. The chloroform is evaporated from the combined shake-outs and washings in a current of clean, dry air at a temperature not greater than 60° C. The residue is dissolved in one or two c.c. of neutral methyl alcohol, and 5 c.c. of decinormal solution of sulphuric acid and 100 c.c. of distilled water are added. After seeing that the alkaloid is entirely dissolved, the excess of acid is titrated with fiftieth normal sodium hydroxide. The essential points are:—(1) Ensuring solution of sample by aid of decinormal acid; (2) control of alkalinity; (3) temperature control to avoid loss by hydrolysis or volatilisation. Assays on mixtures of milk sugar and atropine in known amounts gave the following results:—

Atropine sulphate present—						
(Gm.)	0.0648	0.0648	0.0648	0.0544	0.0648	0.0648
Atropine sulphate found—						
(Gm.)	0.0624	0.0625	0.0625	0.0535	0.0525	0.0629

Ovarian Hormone.—J. O. Rolls, C. N. Jordan, and E. A. Doisy describe in the "Journal of Biological Chemistry," August (p. 357) an improved method of preparing ovarian hormone concentrate from hog liquor folliculi. This involves precipitation of proteins by the addition of two volumes of 95 per cent. alcohol, the filtered-off proteins being extracted with alcohol in a Soxhlet apparatus for six to eight hours. The combined alcoholic filtrates (solution and extract) are distilled to dryness *in vacuo* and water or alcohol added with gentle heating to complete hydrolysis of lipoids. Residue equivalent to one litre of liquor folliculi is dissolved in 150 c.c. of water and centrifuged to remove insoluble matter and accelerate breaking of emulsions. The aqueous solution (divided between two separatory funnels) is made alkaline to phenolphthalein with sodium hydroxide solution, and 30 c.c. of ether added (to each funnel), the mixture being well shaken and centrifuged. The extraction with ether is repeated three or four times, and the combined extracts washed with water before distilling off the ether. The residue is dissolved by treating alternately with petroleum ether and alcohol, keeping a record of the volumes used. The solutions are transferred to a separatory funnel and enough alcohol and water are added to produce 100 c.c. of solution containing 70 per cent. of alcohol, the petroleum ether being also made up to 25 c.c. The alcoholic solution of hormone is extracted six times with 25 c.c. portions of petroleum ether before distilling to dryness *in vacuo*. The removal of cholesterol by taking advantage of its differential distribution between petroleum ether and 70 per cent. alcohol obviates the use of digitonin and its introduction as another source of impurity. The residue is leached with redistilled dry ether and centrifuged to remove

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insoluble solids. The ethereal solution appears to retain its potency remarkably well. The loss (presumably by oxidation) during preparation is consistent, being about one-third of the total rat units present in the original liquor folliculi. The above method gives products for which 0.03 to 0.04 milligram constitute one rat unit. This is some thirty times the strength of that given by the authors' previous method. By additional fractionation a potency of 0.02 mgm. per rat unit can be attained. Since about 10 lb. of hog's ovaries at $2 per lb. yield a litre of liquor folliculi, the cost of the semi-pure hormone is $1.00 per milligram, exclusive of cost of reagents and labour.

Loss of Free Iodine in Alcoholic Solutions.—R. M. Carter, in "Industrial and Engineering Chemistry," August (p. 827), states that the purity of the alcohol used as a solvent in making iodine tincture plays an important part in the permanence of such solutions. Tincture of iodine, U.S.P., was originally an alcoholic solution of the element, and gave great trouble owing to loss of free iodine. In the Eighth Revision an addition of approximately 5 per cent. of potassium iodide converted the tincture into one with good keeping qualities. The same trouble arose prior to 1923 with the specially denatured alcohol permitted for manufacture of tincture of iodine in the United States, Formula No. 25 in general use being:—To 100 (American) gallons ethyl alcohol add 20 lbs. of iodine, U.S.P. Complaints of low iodine content resulted in it becoming apparent that potassium iodide must be included in the denatured alcohol formula to stop the loss of free iodine. The U.S. Revenue Department has made this change, but at the time it was not known whether the purity of the ethyl alcohol had any effect on the rate of loss of free iodine. To clear up this point three kinds of alcohol were used, these being graded by adding 2 c.c. of potassium permanganate solution (0.2 gram per litre) to 50 c.c. of alcohol under test placed in a clean stoppered (50 c.c.) cylinder. The contents are mixed and kept at 15° to 16° C., and the time taken for the disappearance of the pink colour is used as a relative measure of the quality of the alcohol. The three samples used tested :—Low-grade alcohol, 1 minute; medium-grade alcohol, 25 minutes; good-grade alcohol, 32 minutes. The total loss of free iodine was practically the same in the medium and good grades. A most significant feature was the more rapid initial rate of loss in the case of low-grade alcohol, though the total was only a little higher. Addition of 75 per cent. of the theoretical amount of potassium iodide results in less than 2 per cent. loss of free iodine in the course of a year, except in tinctures from low-grade alcohol. In all cases the free acid in the preparations increases at a rate proportional to the loss of free iodine. Methyl alcohol is considered a better solvent for iodination than ethyl alcohol, but the commercial product showed high initial loss (up to 38 per cent. in four weeks), due to the presence of acetone and unsaturated bodies like allyl alcohol. A solution of iodine in pure methanol lost only 0.7 per cent. in two weeks, but inclusion of 10 per cent. of acetone caused 50 per cent. diminution in free iodine during the same period.

Anthraquinone Assay of Cascara Sagrada.—M. P. Tumminkatti and G. D. Beal ("Journal of the American Pharmaceutical Association," October, p. 847) recommend the method below for the assay of cascara sagrada. Gravimetric extraction based upon the work of Daels is adopted as the most feasible process of determining the hydroxymethylanthraquinones in this drug. There are three types of contaminating substances :—(1) A fatty residue containing fatty acids and phytosterol esters; (2) a brown substance practically insoluble in chloroform or water, apparently formed by hydrolysis of "combined" anthraquinones; (3) a yellow water-soluble substance extracted from water by ether or chloroform, but not vice versa. The hydroxymethylanthraquinones are quantitatively adsorbed by Norit decolorising carbon, the fatty impurity being untouched. For separation of the brown material and yellow waxy substance, the acidic character of hydroxymethylanthraquinones is relied upon.

For assay the drug should be in powder not coarser than No. 40. Liquid preparations should be dried on shredded filter paper, or purified sawdust, over a steam bath.

Determination of Free Anthraquinones.—Five grams of drug (or 5 c.c. liquid) is transferred to a 500 c.c. Erlenmeyer flask and 250 c.c. chloroform is added, the flask and its contents being weighed. After boiling gently under a reflux condenser for one hour, cool the mixture, and filter. The residue is washed with several small portions of chloroform. The bulked chloroformic solution is extracted in a separatory funnel alternately with 20 c.c. portions of 5 per cent. sodium hydroxide solution and with water until the extractions are no longer tinted pink. The mixed alkaline extracts and washings are filtered through hardened filter paper. Acidify the filtrate with hydrochloric acid and extract repeatedly with small portions of chloroform. Wash the combined extracts once with water and then filter into a tared vessel. Distil off the chloroform, dry the residue at 100° C., and weigh as "impure" free anthraquinones. Dissolve the weighed residue in 100 c.c. of chloroform, and shake with one gram of Norit (previously extracted with chloroform for twelve hours). Filter into the vessel previously used, washing the residue with several small portions of solvent. Evaporate the solvent and dry the residue at 100° C. for an hour. Weigh the dish and impurities; the difference between this and the previous weight being the weight of "pure" free anthraquinones.

Determination of Combined Anthraquinones.—Return the residual drug, together with the filter paper, to the extraction flask and add chloroform to bring to the original weight. Add 50 c.c. of 25 per cent. sulphuric acid and weigh again. Reflux the mixture at the boiling point of chloroform for 2½ hours, cool, and weigh again. After restoring any chloroform lost by evaporation, the chloroformic layer is filtered and a 200 c.c. portion evaporated in a small flask or beaker. (The residue should be orange-yellow.) Dissolve the residue in 20 c.c. of 5 per cent. sodium hydroxide solution and dilute to 200 c.c. with distilled water. Acidify with hydrochloric acid and stand for half an hour. Filter the precipitate on to a hardened filter and wash once with acidulated water. Dissolve the precipitate from the paper into the precipitation flask with alternate portions of 5 per cent. sodium hydroxide solution and distilled water. Acidify the aqueous solution with hydrochloric acid and extract the anthraquinones with repeated small portions of chloroform. Shake out the combined chloroform extracts with alternate portions of 5 per cent. sodium hydroxide solution and water. Combine the extracts, acidify with hydrochloric acid, and again extract with chloroform. Distil the chloroform from a weighed vessel, dry at 100° C. for one hour, and weigh as "impure" combined anthraquinones. Determine the "pure" combined anthraquinones as in the previous operation.

The following are typical results :—

Preparation—

	Free Anthraquinones			Combined Anthraquinones		
	"Impure"	"Pure"	Per cent.	"Impure"	"Pure"	Per cent.
Fl. Ext. Casc. Sag. U.S.P. ..	0.0044	0.0037	0.07	0.0170	0.0162	0.40
Fl. Ext. Casc. Sag., Commercial ..	0.0051	0.0036	0.07	0.0071	0.0068	0.17
Do. do...	0.0051	0.0028	0.06	0.0128	0.0096	0.24
Fl. Ext. Casc. Sag., Debittered ..		Absent		0.0039	0.0028	0.07

The results show that the larger part of the anthraquinone derivatives in cascara bark are present in the combined form. By using alternate portions of sodium hydroxide solution and water in extracting anthraquinones from a chloroformic solution, the number of extractions is considerably reduced. Examination of the contaminating substances by spectrometer shows that these are probably not anthraquinone derivatives. These readings also exhibit that it would be exceedingly difficult to obtain a satisfactory reproducible colour standard for the colorimetric assay of cascara sagrada.

Digitalis Glucosides.—M. Cloetta ("Archiv für experimentelle Pathologie und Pharmakologie," 112, 1926)

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reports the results of a comprehensive study of the isolation of the active substances of digitalis leaves, their chemical composition, pharmacological and therapeutic properties. Three active glucosides are present in digitalis leaves: digitoxinum crystallisatum, gitalinum crystallisatum and bigitalinum crystallisatum. Digitoxin possesses by far the strongest action; even its genin is more highly toxic than both of the other glucosides. The formula for digitoxin must be $C_{44}H_{70}O_{14}$. It is probable that only two molecules of normal digitoxose are present, while the third molecule represents a sugar still unknown. Bigitalinum crystallisatum forms microscopic prismatic crystals, melting point 282°, and optically active. It is almost insoluble in the usual organic solvents, but is readily soluble in pyridine. The formula is $C_{40}H_{64}O_{14}$, mol. wt. 768.712. Hydrolytic splitting in 60 per cent. alcohol with hydrochloric acid occurs only upon heating. With the addition of three molecules of water this yields one molecule of bigitaligenin ($C_{22}H_{34}O_5$) + 3 digitoxose ($C_6H_{12}O_4$). The digitoxose is identical with that from digitoxin. By heating at a greatly reduced pressure bigitalinum yields 40 per cent. of an anhydro sugar, while by hydrolysis 58.2 per cent. of sugar and 45.35 per cent. of genin are obtained. The anhydro sugar is identical with that obtained from digitoxin. By hydrolysis with hydrochloric acid there is derived along with crystalline digitoxose a small quantity of an oleaginous sugar, which appears to be a methyl or ethyl glucoside. In the bigitalinum compound six acetyl groups can be introduced, and the derived product, $C_{52}H_{76}O_{20}$, crystallises in needles, melting point 134°. Instead of the acetyl, six benzoyl groups can be introduced, but when this occurs the product no longer has a definite crystalline form, and despite its very high molecular weight the melting point is 155°. Crystalline bigitaligenin has typical rhombic sheets, melting point 232°, is optically active, +33.62°, and easily soluble in alcohol and chloroform. From bigitaligenin a mono- and a diacetyl compound can be prepared; the first crystallises in needles, melting point 170°; the second forms rectangular plates and melting point 240°. Through the action of concentrated hydrochloric acid on the genin the dianhydro compound, $C_{22}H_{30}O_3$, is obtained. This crystallises in long slender plates and melting point 211°. The substance is optically active, +57.6°. The dianhydro compound contains a free hydroxyl group, since from it can be derived an acetyl-dianhydrogenin, which forms fine needles, melting point 213°. By the hydration of genin a dihydrobigitaligenin is obtained, crystallising in rectangular sheets, melting point 212°, lævorotatory, −10.3°. Apparently it also yields a tetrahydrobigitaligenin, likewise crystallising in needles, melting point 246°, and optically active. −24.34°. From anhydrogenin tetrahydrodianhydrobigitaligenin is formed, crystallising in very large sheets, melting point 181°. Gitalinum crystallisatum, $C_{17}H_{28}O_6$, crystallises in small rosettes, melting point 245°, soluble in alcohol, chloroform, acetone, and is optically inactive. It is a very labile substance, being readily broken down by either hot or cold dilute hydrochloric acid. During this process, with the introduction of one molecule of H_2O, one molecule of gitaligenin, $C_{17}H_{28}O_3$, and one molecule of digitoxose, $C_6H_{12}O_4$, arise. In acetylation only two acetyl groups can be introduced. Gitaligenin crystallises in very minute needles, visible only when magnified some 400 times, melting point 222°, optically dextrorotatory, +31.23°. In experiments on anhydro formation the substance is transformed almost quantitatively to the dianhydro compound of bigitaligenin. This process can be explained only by loss of H_2O from two molecules of genin and the condensation of the latter in accord with $2C_{17}H_{28}O_3 - 3H_2O = C_{22}H_{30}O_3$. From the anhydro compound acetyl compounds can be formed. By hydration of the genin at 40° a product is formed, which seems to be identical with tetrahydrobigitaligenin, while a dihydro substance is not obtained. Thus dihydrogitaligenin may be formed, but this is immediately condensed with loss of water. The leaves contain gitaligenin in a free state and also an oleaginous sugar, which appears to be identical with the methyl-ethyl glucoside arising from acid hydrolysis. Two other crystallisable substances occur, one of which closely approximates digitoxigenin, the other belonging to the genins of the gitalin series. The colour reactions of both of the glucosides are almost identical with those of digitoxin. All of the derivatives of the genins give the same reactions with the exception of the hydrated products. Despite all effort it was impossible to prepare from the leaves a readily water-soluble active pure substance, the so-called "digitalein." All substances so designated are mixtures of the three glucosides and their genins, together with easily water-soluble inactive substances. Pharmacological determinations show that gitalinum and bigitalinum as tested on both frogs and cats are about two and a half to three times weaker than digitoxin, although the character of the effects is the same. The genins of the gitalin group are some ten times less active on frogs and cats than digitoxigenin. The six-fold acetylated bigitalinum is about half as potent as the glucoside, and this is true also for diacetylgitalinum. The six-fold benzoylated bigitalinum is wholly inactive. On the contrary, the acetylation of both genins causes an increased action for both frogs and cats. The effectiveness on the heart is abolished by hydration. The anhydro substances are inactive. All active substances taste bitter. The separate extraction of leaves, first with water, then with alcohol, yields mixtures which possess apparently the same actions, but in these the action is dependent upon different glucoside groupings of the digitoxin and gitalin groups. All digitalis action depends on the presence of the three glucosides and their genins; an easily water-soluble active pure substance cannot be obtained. In the therapeutic evaluation of digitalis preparations it is to be considered that from glucosides of the gitalin group only weakly active genins arise, while the digitoxigenin still retains a high toxicity. This explains the stronger after-effects of digitoxin. With the same therapeutic initial effect of a definite amount of glucoside from the gitalin group on the one hand, and of the digitoxin group on the other, the duration of the effect and the possibility of a cumulative action by the repeated administration would be expected to be entirely different.

BACTERIOLOGY

Germicidal Power in Relation to Stereo-chemical Configuration.—E. A. Cooper and S. H. Edgar ("Biochemical Journal," Vol. XX, No. 5, p. 1060) have investigated the bactericidal powers of *cis* and *trans* modifications of stereo-chemical isomers. Fumaric acid, the *trans*-isomer, was germicidal at a concentration of 1 in 1,000 in a normal culture using the Chick-Martin method at 37° C. Maleic acid, the *cis* modification, though the stronger acid, was weaker in bactericidal action, 1 in 750 being its equivalent germicidal concentration. Evidently hydrogen ion concentration alone does not determine the bactericidal power of an organic acid, since configurational differences cause a selective action. Mesaconic (*trans*) acid possessed a like excess inhibitory power compared with the *cis* citraconic acid. The above four acids and also itaconic acid were more effective as germicides than phenol. The higher bactericidal power of the *trans* compounds is not due to selective absorption by bacterial proteins as the *cis* acids are taken up in larger amounts. An analogy to *ortho* and *para* aromatic compounds is obvious, as in each case the more symmetrically constituted compound (*trans* or *para*) is in general the more powerful germicide and precipitant. It is suggested that fumaric acid may prove useful as a germicide possessing a low toxicity.

Coal Tar Disinfectants were among the topics at a conference on tar at Manchester on November 26 ("Journal of the Society of Chemical Industry," Vol. 45, p. 415t). In his paper Mr. A. C. Tait stated that the point has probably been reached where the bactericidal value of emulsified fluids cannot be increased if made solely from coal-tar acids. Bactericidally the cresols were superior to phenol, which is the standard of comparison. The xylenols are more effective than cresols, and are derived from blast-furnace tars, being present in small

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amount only in ordinary coal tar. In industrial practice the fraction containing xylenols known as high boiling-point tar acids constitute the most important group used in the manufacture of disinfectant fluids. The ultimate requirements of a good disinfectant are that it should form an emulsion on dilution sufficiently fine to exhibit Brownian motion, and that it should contain sufficient phenolic compounds to have a reasonably high carbolic coefficient. The finished product may have a higher or lower bactericidal power than the average of the separate ingredients, which proves that blending and saponifying are important factors in making coal-tar disinfectants. The cheaper disinfectant fluids consist usually of creosote and cresylic acid emulsified with resin soap, the content of cresylic acid varying with the desired selling price. The viscosity of the creosote had an important bearing on the finished product, which should be as fluid as possible to facilitate its dispersion in water. A suitable creosote would have a specific gravity of 1.00 to 1.01, and contain a variable amount of tar acids which have to be taken into account in adding other phenolic compounds. Better emulsions are secured by using oil soaps, disinfectant fluids of the highest coefficient being made with potash castor-oil soap. The relationship between xylenol content and carbolic coefficient are:—

Xylenols.	Carbolic coefficient.
35 per cent.	... 20 or over.
25 per cent.	... 15 or over.
20 per cent.	... 10 or over:

Differences in emulsification account for the fact that fluids with the same xylenol content have varying coefficients. Glue or gelatin is used for phenolic disinfectants intended to mix with brackish water or saline solutions. These disinfectants are greyish-white (and not dark clear fluids like those just described). They are of immeasurable advantage at sea and in tropical countries. Coal-tar products form the basis of many recognised sheep dips, these often being fortified with hellebore, nicotine or arsenic. The so-called non-poisonous dip for sheep scab is approved by the Ministry of Agriculture if the diluted dip contains 0.36 per cent. of tar acids and 0.76 per cent. of total tar oils (including tar acids). The best disinfectant powders are made by absorbing up to 20 per cent. of coal-tar disinfectant by kieselguhr or chalk. Pink carbolic powders are preferred to greyish-white products owing to a mistaken belief in their superiority. As the former usually consist of carbolate or cresylate of lime, they are bactericidally inferior to those containing unaltered tar acids.

BOTANY

The Propagation of Plants by Cuttings.—In the "Journal of Pomology," October, p. 248, R. C. Knight concludes that callus formation in plum cuttings is not correlated with root production. Callus formation is favoured by a high water content in the soil, but this may hinder root production if it affects the aeration of the substratum.

Effect of Salts on Starch Formation in Plants.—V. S. Iljin ("Bulletin de l'Ecole Supériere d'Agronomie de Brno," 1925) finds that the leaves of plants growing in lime soils could continue to form starch from glucose or maltose when the solution in which the leaves were immersed contained a relatively high concentration of calcium. On the other hand, comparatively low proportions of sodium chloride prevented starch formation, but halophytes continued to synthetise starch in concentrations of 0.35 to 0.5 part per thousand of the sodium salt. Instead of regarding plants as "calciphile" or "calciphobe," etc., attention should be paid to the tolerance of the plant to the injurious action of soluble soil ingredients. This is borne out by species reacting to certain salt concentrations irrespective of the character of the soil on which they were grown. In the struggle for existence the plant showing resistance to a certain salt possesses an advantage in situations where it is present in undue concentration.

Dermatitis from Flower Bulbs.—Sybil G. Overton (Inspector of Factories) recently described an investigation made with a view to amplifying knowledge of the occurrence and character of dermatitis from handling flower bulbs ("Lancet," II, 1925, p. 1003). An examination of the bulbs of various flowers readily discloses that hyacinths, narcissi and daffodils, rather than tulips, would be the chief offenders if friction were the explanation of the peri- and hyp-onychial dermatitis, whereas workers were unanimous in fixing the blame on tulip bulbs. It seems not unreasonable to suppose that trauma first occurs, followed by the introduction under the nails of an irritant derived from the bulb substance. In the bulb substance are stored the plant foods, but which of these constitutes the irritant it is difficult to say, as little is known of the chemistry of the bulb. Whatever may be its chemical composition, it was easy to express from a tulip bulb an acrid juice which experimentally produced a subungual irritation in a short time, without the existence of previous trauma. While examining microscopically the covering testa of various bulbs the author found that the testa of the Roman hyacinth, which is fine and flaky, readily produced a fairly intense irritation of the skin of the neck. This has been verified. There seems here to be a resemblance to the well-known dermatitis from *Primula obconica*, *Rhus toxicodendron* and other plants. In conclusion, chronic peri- and hyponychial dermatitis is produced by handling tulip bulbs and constitutes yet another of the trade stigmata, the recognition of which may be of great value to the medical observer. A similar condition has not, to the author's knowledge, been caused by any other occupation.

ANALYTICAL CHEMISTRY

Simple Test for Sulphites.—At the November meeting of the Society of Public Analysts a simple method of testing for sulphites in foods was described by Mr. A. E. Parkes. The food (if not a liquid) is mixed with water and placed, together with fragments of marble and dilute (about $N/2$) hydrochloric acid, in a conical flask, closed with a rubber stopper bearing a small thistle funnel bent twice and having a small bulb on each limb. The funnel contains a few drops of dilute ($N/0.01$) iodine solution and dilute barium chloride solution. After evolution of carbon dioxide has ceased, the flask is heated, and, in presence of a sulphite, the colour of the iodine in the funnel is discharged and the liquid becomes opalescent (barium sulphate). The test may be made approximately quantitative.

Colour Tests for Vitamin A are being subjected to critical examination. O. Rosenheim and T. A. Webster, at a meeting of the Biochemical Society, on October 9, stated that Fearon's pyrogallol test for vitamin A is non-specific. On saponifying cod-liver oil the chromogen responsible for the reaction remains in the soap solution, and the unsaponifiable matter does not react to Fearon's test. Pig's liver fat, showing high vitamin A content by growth tests on rats, did not give the Fearon colour reaction, but sardine oil devoid of vitamin A reacted strongly.—T. Moore and S. G. Willimott treated cod-liver oil by shaking with sulphuric acid until development of colour ceased. After washing the product with water and filtering through fuller's earth, the oil gave Fearon's test as strongly as before. It did not promote growth in rats suffering from vitamin A deficiency, nor did it give a coloration with the arsenic trichloride test of Rosenheim and Drummond. The above results are opposed to the utility of Fearon's test as being a measure of the vitamin A activity of oils.

BIOLOGICAL CHEMISTRY

Stability of Vitamin C.—G. J. Humphrey ("Journal of Biological Chemistry," Vol. 69, p. 511) has tested biologically a desiccated preparation of orange juice made by adding 25 per cent. of sugar to fresh orange juice and drying *in vacuo*. The dried orange, after keeping for five years under a partial vacuum, protected guinea pigs from a scurvy-producing diet, showing that vitamin C can retain its activity for five years under suitable conditions.

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Linkages in Proteins.—Professor S. P. L. Sprensen, in the Hugo Müller Lecture to the Chemical Society on October 28, stated that recent research indicated a divergence from Fischer's view that proteins consist solely of amino-acids with peptide linkages. There is no doubt that other types of linking are present in the protein molecule, the supposition that it contains diketo-piperazine rings being more acceptable than that hydroxylated pyrrole rings form its main structure. The only certain knowledge on the characterisation of proteins is that diketopiperazine is not split off by erepsin and none of the peptides is affected by trypsin.

Vitamin B Differentiation.—S. M. Hauge and C. W. Carrick ("Journal of Biological Chemistry," LXIX, No. 2, p. 403) conclude that the antineuritic Vitamin-B and the growth-promoting vitamin B are not identical. Diets were fed to chickens in which ground yellow corn, or a special dried brewer's yeast from the American Burtonising Co., were the sole source of antineuritic or growth-promoting vitamin B respectively. Chickens on diet containing 30 per cent. of corn grew very slowly without yeast, but did not develop polyneuritis. Chickens with yeast replacing corn grew well for ten weeks, when paralytic symptoms of polyneuritis appeared, and death supervened unless corn was then included in the ration.

Histidine is an indispensable amino-acid which is a precursor of purines during protein metabolism in the animal body. G. J. Cox and W. C. Rose ("Journal of Biological Chemistry," Vol. LXVIII, No. 3, p. 781) find that adenine, guanine, creatinine, and creatine are not capable of functioning in the place of histidine, despite the fact that they contain the imidazole group. This is interpreted as indicating that purine formation from histidine is an irreversible reaction in the body. These investigators succeeded in obtaining resumption of the growth of rats on adding *dl*-β-4-imidazole lactic acid to a histidine-deficient diet, the rate of growth induced being slightly lower than that with the equivalent quantity of histidine. This is apparently the first successful attempt to replace a nutritionally indispensable amino-acid by a non-amino compound.

Glycolysis is the term given by T. Brugsch and H. Horsters ("Biochemische Zeitschrift," 175, p. 90) to the transformation of dextrose into lactic acid. They find that this occurs only in the presence of phosphate, the optimum proportions being phosphate 3 per cent., and dextrose 0.3 to 0.4 per cent., in a solution with PH 6.3 to 6.4. Glycolysis is inhibited by potassium chloride (0.3 per cent.) and calcium chloride (0.4 per cent.), but sodium fluoride is not any more potent. The union of phosphoric acid with dextrose is called glycometamorphosis, which occurs at high sugar concentrations in the presence of a phosphatase and over 3 per cent. of phosphate. A co-enzyme is also present in the muscle, and this can be replaced by insulin. The complicated character of blood sugar transformations is further evident from the fact that glycolysis and glycometamorphosis are independent.

Vitasterol is the name proposed by D. Rosenheim and T. A. Webster for the precursor of vitamin D. In a communication presented to the Biochemical Society on December 6, these investigators stated that cholesterol itself is not the source of the antirachitic vitamin, purified cholesterol not being activated by irradiation.—At the same meeting, I. M. Heilbron, E. D. Kamm and R. A. Morton stated that by fractional crystallisation 5 grams of a less soluble portion had been separated from two kilograms of cholesterol. Whereas cholesterol exhibits only general absorption in the ultra-violet, the new substance has three well-defined bands at 293$\mu\mu$, 280$\mu\mu$, and 269$\mu\mu$. These characteristic bands disappear on irradiation. The fact that irradiation induces antirachitic potency in cholesterol is regarded as affording strong evidence for a correlation between the substance showing absorption bands and the vitamin precursor.

Nutritive Properties of Wheat Bran Proteins.—J. C. Murphy and D. Brecse Jones ("Journal of Biological Chemistry," Vol. LXIX, No. 1, p. 85) have made feeding experiments on rats with bran proteins which are characterised by their high content of the so-called nutritionally essential amino-acids. These are collectively present in wheat bran to about double the proportion of the proteins present in wheat endosperm, as is evident from the following comparison :—

Amino-Acid		*Wheat Bran*	*Wheat Endosperm*
Cystine	per cent.	0.25	0.14
Arginine	,,	0.85	0.36
Histidine	,,	0.18	0.20
Lysine	,,	0.54	0.23
Tryptophane	,,	0.28	0.12

Growth tests on rats with unwashed commercial bran as the only source of protein gave excellent rate of increase in weight for 15 to 16 weeks, but little better than maintenance of body weight resulted in the following 48 weeks. The rats produced offspring, but fecundity was low and the mothers had little success in rearing their offspring.

Rectal Alimentation.—T. M. Carpenter (Publication No. 369, Carnegie Institution, Washington) brings forward experimental evidence that alcohol, dextrose, and lævulose administered rectally are absorbed and used directly in body metabolism. It is computed that alcohol can replace up to 50 per cent. of the food material in momentary use. Also that the metabolic requirements of the body for two or three hours can be met by rectal injection of dextrose. Lævulose does not apparently become oxidised immediately, being retained possibly as glycogen. Intestinal absorption of alcohol (the dose was usually 25 gm. in 0.6 per cent. saline solution of 5 to 10 per cent. strength of alcohol) was almost complete, signs of intoxication being producible. The effect on general metabolism included a fall in the respiratory quotient and a rise in pulse rate, these occurring a little quicker on oral ingestion following more rapid absorption. Between 60 and 90 per cent. of the dextrose administered rectally was absorbed, the intake being greatest during the first two hours. Lævulose was more difficult to retain, absorption being as low as 50 per cent., but complete ingestion via the bowel also occurred. Both the sugars increased the respiratory quotient, the pulse rate rising as well. The results show that alcohol and dextrose are suitable for use when rectal alimentation is a necessity in nutritional disease.

Cancer Research.—In a recent paper ("British Medical Journal," II, 1926, p. 865) Dr. W. E. Gye deals further with the cancer problem, his experiments giving him reason to believe that the Rous sarcoma extract (*C. & D.*, September 26, p. 427) contains two different factors which may be separated. By treating the filtrate with chloroform or acriflavine he suppresses one of these (the virus) and leaves the chemical factor unimpaired. When cultivated virus alone is added to the chemical factor the characteristic Rous sarcoma can be produced by injection into fowls. Neither of the ingredients alone produces the condition. There is, he states, no incompatibility between new and old "fact"; and in the second place it shows that there is an agent contained in tumours of diverse origin and of diverse structure which has the supremely important property of reactivating an extract of the Rous sarcoma which has been inactivated by means of an antiseptic. The tumours in this respect are therefore linked together in a way which had never before been suspected; they are, indeed, a natural group. The agent which is common to these and which links them together in a group is killed by antiseptics and can be cultivated. Moreover, under special conditions it can be seen and photographed. The simplest explanation of these observations is, the author believes, the correct one—namely, that the agent is a living, filterable microbe, and that it is the cause of new growths.

Fertility and Lactation Vitamins.—B. Sure, in continuing his investigations on the antisterility vitamin E and the dietary requirements for reproduction, announces

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the existence of a lactation-promoting factor in the unsaponifiable portion of wheat germ oil. Three consecutive papers appear on this subject in the "Journal of Biological Chemistry," July (p. 29, *et seq.*). The first concerns the rôle of vegetable and fruit oils in promoting fertility and lactation in rats. Wheat germ oil is the most potent for this purpose, 3 per cent. in a skimmed milk powder diet being adequate, but acetone extract of wheat germ was inferior to ether extract of this embryo. Cottonseed oil, corn oil (raw), and palm oil require more (about 5 per cent.) to secure normal lactation, and these also exhibit antisterility properties. Commercial corn oil (refined by steaming and neutralisation of fatty acids with sodium carbonate, and filtration through fuller's earth) was ineffectual, showing that the vitamin E had been destroyed or removed. Peach-kernel oil, soya-bean oil, peanut oil, and olive oil were non-potent for lactation, but were effectual in curing sterility. Linseed, coconut, sesame, palm-kernel, rapeseed, and sweet almond oils were deficient in both lactation-promoting and antisterility properties. The second communication states that there are two types of sterility encountered on the skim milk ration used. One form is characterised by resorption of the fœtus; the second type, occurring in the second generation, can be prevented by the addition to the diet of wheat germ oil (3 per cent.), as well as aluminium, fluorine, manganese, and silicon in the form of suitable salts. The third paper includes experimental evidence that vitamin E possesses lactation-promoting as well as antisterility properties, the latter being thermostable and more resistant to oxidation as compared with the thermolabile lactation factor.

Dissolution of Insulin.—Casimir Funk ("Lancet," II, 1926, p. 1140), reporting on the separation of two new substances, states that from the insulin produced in the Warsaw State Institute of Hygiene (the clinical unit being 0.07 mg.) by an extremely mild fractionation procedure, it was found that two substances could be obtained in a crystalline state, which are being designated as A and B. The substance A is contained in the insulin in a large proportion, the yield corresponding to over half of the weight of insulin taken. Unlike insulin, it decreases the blood-sugar in 70-80 per cent. of normal rabbits, but in those with a high initial blood-sugar it decreases the blood-sugar by 10-44 per cent. In rabbits with low initial blood-sugar it produces either no effect or causes increases from 5-20 per cent. This observation led the author to apply the substance clinically on diabetics and non-diabetics in conjunction with Dr. Marceli Landsberg, Warsaw. From the small amount of cases investigated it would be premature as yet to reach a definite conclusion, but so far we had increases of blood-sugar or no effect in non-diabetics and marked decreases in diabetics. As to the substance B, it represents a new hormone of complicated and not yet easily understood action. Substance B, when injected or given by the mouth, causes marked and lasting increases in blood-sugar, so that hyperglycæmia and glycosuria have been produced in normal rabbits with six doses of 0.2 mg. of the substance per day. The substance B causes a high-grade dilution of the blood with enormous retention of water, and if one takes that dilution into account blood-sugar increases amounted to over 800 per cent. The rabbits eventually died, and the pathological changes are being investigated, especially in the pancreas, on which a report will follow later. As the substance B was found in insulin and the latter hormone in a number of organs, and, therefore, probably in food, and as it acts by the mouth, this substance may have something to do with the causation of at least certain forms of diabetes R. D. Lawrence (*loc. cit.* p. 1190), in reply to the above, writes: Similar results have been obtained in rabbits by Dr. Buckley and the author, working with the ordinary whole insulin (AB) produced commercially by The British Drug Houses, Ltd. These rabbits had been poisoned by diphtheria toxin, and it was found that when the fasting blood-sugar was low, insulin failed to lower it, and sometimes even raised it, but when the fasting level was high, insulin always reduced the blood-sugar to a certain extent. On some occasions also normal rabbits with AB insulin, one unit, gave a rise of blood-sugar similar to that produced by a small dose of adrenalin. These results obtained with whole insulin (which will shortly be published) seem to have something common with those of Professor Funk with his substances A and B. These results are explained by an abnormal metabolic condition produced by the action of diphtheria toxin on the adrenal and thyroid. But there is no adequate explanation to offer for the occasional rise in blood-sugar observed after insulin in normal rabbits. Professor Funk (*loc. cit.* p. 1244) further states: Commercial insulin seems to be composed of at least three substances—viz., the true pancreatic hormone A, the anti-insulin B, and co-insulin C. Of these substances A and B have been obtained in crystalline form, while the work on the substance C is only now nearing completion. Substance A acts on rabbits according to their fasting blood-sugar levels. It increases the blood-sugar generally in those with a low level and decreases it in those with a high level. In over twenty cases of diabetics, treated so far in Warsaw clinics and elsewhere, it could be ascertained that the substance A acts like the old insulin. It is too early, however, to state whether the new substance presents any disadvantage or advantage over insulin, but since it is free from the very toxic substances contained in commercial insulin the latter should be the case. In non-diabetics, on the contrary, the substance A causes either no change in the blood-sugar or appreciable increase. One exception was noted here; this was a case with normal blood-sugar level, but with sugar in the urine one week before injection of substance A. This interesting result suggests, perhaps, that the substance A might be used with success for diagnostic purposes, like the known sugar tolerance test, but it might be of more value to the physician than the latter. With regard to the puzzling behaviour of substance A in diabetics and non-diabetics, his present explanation is that in non-diabetics there is lack of substance C (co-insulin), without which, perhaps, the substance A cannot act, or a superfluity of substance B (anti-insulin). In diabetics, on the contrary, there is too much of B (anti-insulin) and insufficiency of C (co-insulin). This interpretation may have to be modified. Similar explanation can be put forward in Dr. Lawrence's interesting results (using ordinary insulin) on the blood-sugar increases in normal rabbits (which the author never encountered with good insulin). In such cases the effect of insulin might depend on the ratio of substances A, B, and C in the preparation used, and on the equilibrium of these three substances in the animal itself.

INDUSTRIAL CHEMISTRY

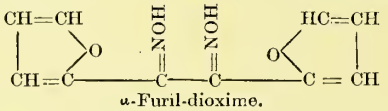
Chemical Properties of Insulin.—F. H. Carr describes the manufacture of insulin in "Chemistry and Industry," October 15, p. 750. One of the properties of insulin is that it is sparingly soluble in water at its isoelectric point (P_H 5.2). A small adjustment towards acidity or alkalinity makes insulin readily soluble, and it seems likely that the release of insulin from the cells of the blood is controlled locally by minute variations of hydrogen ion concentration in the body fluid at the point in question. Insulin is precipitated from a solution by half-saturation with ammonium sulphate and sodium chloride. It is insoluble in absolute alcohol and can be purified from proteins by precipitation with picric acid. Insulin from ox pancreas gives a distinct biuret reaction, but that from skate pancreas does not respond. The purest insulin obtainable yields negative reactions for phosphorus, trytophane, and tyrosine. All samples contain organic sulphur and give a definite Pauly reaction. Insulin is almost completely destroyed by $N/0.1$ sodium hydroxide at 37° C. in 1½ hours, or by boiling with $N/0.1$ sodium carbonate, or in neutral solution, for about 10 minutes. It is not quite destroyed in $N/0.1$ acid after even 1 or 2 hours at 100° C. Insulin is a substance of considerable complexity, as it will not

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pass through a collodion membrane, and its destruction by pepsin and trypsin show that it has apparently a protein or polypeptide structure. The international unit for insulin is now 0.125 milligram of a standard prepared by the National Institute for Medical Research. This is only about one half that of the former unit (based upon the amount of insulin required to lower the blood sugar in a rabbit from 0.10 to 0.045 per cent. in a 2-kilogram rabbit which has fasted for 24 hours). Some preparations of insulin act more quickly than others after injection, and it is to be hoped that this adjuvant will be discovered in order to spread the action of insulin over a longer period and thereby reduce the number of injections needed.

Biochemical Manufacturing Methods.—F. H. Carr gave an address on "Chemical Industry and its Relationship to Delicate Plant and Animal Products," at a meeting of the Liverpool Section of the Society on November 19 ("Chemistry and Industry," November 26, p. 874). This described the ways in which factory practice is keeping pace with operations indicated by biochemical research in isolating delicate cell constituents without altering their composition. The best method of bringing enzymes and the lower organisms under control is to cool the material to 0° C. in the shortest possible time Exposure to very cold air is effective so long as this is below −10° C. The air can be chilled by passing over brine-cooled coils, but the latter rapidly become covered with ice and their refrigerating capacity diminishes. An alternative is to blow cold air through a cascade of cold brine, using baffles to remove the spray. This method is not only effective but has also a desiccating action, so that by its continuation the material can be completely dried. A useful method of effecting the concentration of aqueous liquids is to lower the temperature of the solution until ice separates. The ice crystals are removed by straining and the process repeated as often as necessary to bring about the desired concentration. In precipitation with alcohol a preliminary concentration on these lines can effect great economy. Autolytic changes may often be inhibited by adjustment of the acidity of solutions, but harm may be done during neutralisation unless precautions are taken to prevent rise in temperature. A recently introduced device brings about continuous mixing of cooled solution and reagent by making them meet on a disc rotated at a high speed. Isoelectric precipitation of proteins can be carried out with great rapidity in the factory by a range of indicators and a comparator with the aid of a range of buffer solutions. High-speed centrifugation constitutes the best means of removing suspended colloids which are difficult to filter. In concentrating biological products by evaporation *in vacuo* that method is preferable which entails the shortest time of boiling. Tubular evaporators of the continuous-flow type offer special advantages, but unless the tubes are of ample diameter the vapour pressure (and therefore the temperature) may rise considerably above that desirable. Two-stage vacuum pumps and a large (brine cooled) condensing surface are preferable, the latter being at least five times that of the heating surface. The Kestner type of evaporator is particularly suitable, being easily cleaned by removing the semi-circular connecting pipes at the end of its horizontal jacketed tubes. Boiling commences upon the liquid entering the tubular evaporator, the vapour forming a central core which carries along therewith the liquid as a thin film. The velocity of the liquid increases with the amount of vapour given off. Liquor and vapour are separated in a tangential separator, which traps the concentrate and passes it along to a vacuum receiver. The jacketed tubes may be heated by circulating water or oil controlled thermostatically to any desired temperature. Film driers and spray driers are now operable in vacuum. Complete drying can be effected at about 50° C., though the air for spraying is 100 C. or more. It is claimed that the atomised particles are dried in so short a space of time that the temperature of the product does not reach that of the average chamber temperature before all the water has been removed. Solutions containing albumen can be dried to a product giving a clear solution which retains the property of coagulation upon heating.

Separation of Platinum Metals.—S. C. Ogburn, jun., in the "Journal of the American Chemical Society," October (p. 2507), gives a new scheme of analysis for the platinum metals, which is comparatively easy for anyone unfamiliar with the detailed chemistry of this metallic group. *Palladium* is removed by adding in the cold a slight excess of a 1 per cent. alcoholic solution of dimethylglyxoamine (excess is avoided, as it interferes with separation of rhodium). The mixture is stirred and then warmed to 35° to 40° C., and alcohol equivalent to 15 per cent. of the volume of solution is added to aid in coagulation of the precipitate of bright yellow, $Pd(C_4H_7O_2N_2)_2$. This is washed, dried at 105° C., ignited in air, and at red heat in hydrogen for twenty minutes, the metallic palladium being finally cooled and weighed. *Platinum* is precipitated in the filtrate (from palladium separation) by treatment with a 2 per cent. solution of α-furil-dioxime. This latter is a new reagent (made from furfural), introduced by B. A. Soule (*loc. cit.*, Vol. 47, p. 982), with the constitution :—



α-Furil-dioxime.

Alcohol equal to 10 per cent. of the total volume is added, and the solution boiled for thirty minutes. After testing by boiling with more reagent for completeness of precipitation, the red-brown precipitate, $Pt(C_{10}H_7O_4N_2)_2$, is washed, ignited, and weighed as metallic platinum. *Rhodium* is obtained by evaporating the filtrate to one-third of its volume, cooling, and treating with conc. hydrochloric acid (5 c.c. per 100 c.c. of solution) and sodium chlorate (5 gm.) to remove oximes. The mixture is cautiously warmed until chlorine fumes cease to be evolved. An equal amount of water is added and, after further dilution with a like bulk of alcohol, the mixture is boiled, a small quantity of saturated solution of potassium being also stirred in. The latter salt is added until alkaline to litmus, and the boiling is continued until a permanent white cloudy precipitate begins to form. Excess of nitrite is to be avoided, as this leads to formation of double nitrite of ruthenium, instead of its nitrosochloride. After boiling for fifteen to twenty minutes, the mixture is stood overnight, and the yellow crystalline precipitate, $K_3Rh(NO_2)_6$, filtered off and washed with 50 per cent. alcohol. The residue is dissolved in boiling aqua regia and evaporated with conc. hydrochloric acid to remove nitrogen oxides. The rhodium chloride in the diluted solution is reduced with magnesium turnings or zinc dust and weighed after washing and ignition as metallic rhodium. *Ruthenium* is precipitated by sodium hydroxide (after evaporation nearly to dryness of the filtrate from rhodium made acid with conc. hydrochloric acid). The solution is evaporated until it begins to crystallise, when it is diluted with three or four times its volume of water and sufficient of the alkali added to precipitate all the ruthenium present and dissolve any iridium which tends to be thrown down if insufficiently alkaline. Alcohol (½ vol.) is added and the whole boiled slowly for fifteen to twenty minutes before standing for several hours to allow settling out of black hydrated ruthenium oxide, $Ru_2O_3.3H_2O$. This is washed, dissolved in boiling dilute hydrochloric acid, and reduced with metallic magnesium or zinc dust. The filtrate from ruthenium is evaporated to remove alcohol and then made distinctly acid with hydrochloric acid before treating with zinc dust until the solution is colourless. The black finely divided metals are filtered off, washed, and *Osmium* dissolved out by means of a fresh solution of sodium hypochlorite, *Iridium* remaining unattacked. The osmium filtrate is acidified with hydrochloric acid, and the metal precipitated with zinc dust. The washed osmium is ignited in air at 190° C. only, before final heating in hydrogen. The method is well adapted for semi-quantitative determinations having an accuracy within 2.5 per cent. for each of the metals.

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PURE CHEMISTRY AND PHYSICS

Urease as a Crystalline Enzyme.—A globulin has been isolated from the jack bean (*Canavalia ensiformis*) which crystallises in octahedra and is apparently identical with urease (J. B. Sumner, "Journal of Biological Chemistry," Vol. 69, August 1926, p. 435). In the presence of a suitable phosphate buffer this globulin will decompose its own weight of urea in 1½ seconds at 20° C.

Spermin has been synthesised by H. W. Dudley, O. Rosenheim, and W. W. Starling ("Biochemical Journal," Vol. XX, No. 5, p. 1082). This substance is a base found in human and animal spermatozoa and its constitution is now established as α-δ-bis [γ'-amino-propyl-amino-]-butane :—

$NH_2.CH_2.CH_2.CH_2.NH.CH_2.CH_2.CH_2.CH_2.NH.CH_2.CH_2.CH_2.NH$

The synthetic product proved identical in all respects with spermin, giving the characteristic insoluble phosphate.

Thyroxin has been synthesised by C. R. Harington and G. Barger. The various stages, starting from quinol monomethyl ether, are given in a paper presented to the Biochemical Society on December 6. The synthetic product is :—

β-[3, 5-di-iodo-4-(3', 5'-di-iodo-4'-hydroxyphenoxy)phenyl] -α-amino-propionic acid.

It is chemically indistinguishable from natural thyroxin. The physiological identity was proved by intravenous injection of the synthetic thyroxin into myxœdematous patients, which resulted in a marked rise in the basal metabolic rate.

Transformation of Hydrogen into Helium.—E. Paneth and K. Peters claim to have obtained minute amounts of helium from hydrogen absorbed by finely divided palladium ("Berichte der Deutschen Chemischen Gesellschaft," Vol. 59B, p. 2039). Improved methods of detection permit the formation of one-tenth to one-hundred millionth of a cubic centimetre of helium to be observed. Hydrogen was absorbed at room temperature by palladium in the form of sponge, black or palladinised asbestos. After various intervals of time oxygen was added and the hydrogen burnt to water on the surface of the catalyst. Water and excess of oxygen were removed by charcoal absorption. The residual gas after twelve hours' contact exhibited four or five helium lines, and there was a general proportionality between the amount of helium observed and the duration of contact of hydrogen with palladium. The palladium gradually lost its catalytic activity, becoming inactive after about twenty treatments. It can be revivified in the usual way, and the activity of different preparations of finely divided metal varied considerably. The results show that palladium stored should contain helium. One specimen of Kahlbaum's palladinised asbestos two years old contained 10^{-6} c.c. per gram, this being relatively very rich.

The Annihilation of Matter must be the source of energy emitted by the sun and stars is a doctrine expounded by Dr. J. H. Jeans in a recent lecture ("Nature," December 4, Special Supplement). Electrons and protons are considered mutually to destroy one another, the energy of this falling together being enormous. Whereas a ton of coal in ordinary combustion would drive an express locomotive for an hour, its annihilation would provide heating, light, power, and transport for the whole of Great Britain during the next century. Each splash is like that of radioactive matter in a spinthariscope, except it is many thousands of times more powerful. The great energy of the splashes is counterbalanced to some extent by their rarity. In the sun about one atom in every 10^{17} is destroyed each hour. If a cubic metre of the sun's mass contains 10^{22} atoms, some 100,000 of these are annihilated every hour. The energy thus emitted is only 0.00022 calorie per hour. The enormous flow of energy from the sun results from the fact that it is streaming out of the mouth of a cone 433,000 miles in depth. Dr. Jeans inverts evolutionary concepts in regard to stars by supposing that the youngest stars contain elements of the highest atomic weights (heavier than uranium). Planets like the earth are permanent because they consist of only the lightest elements that have lost all power of radiation.

DENTISTRY

Toothbrush Design.—C. S. Abraham ("British Dental Journal," December 1) condemns the ordinary-shaped toothbrush because the inducement to rub from side to side is too strong. A design of toothbrush which he contends meets the difficulty is one shaped like a T, the brush part being at right angles to the handle. This shape induces an up-and-down movement, and kills any tendency to brush from side to side. The handle should be short (about 4 in.) so that one has a firm grip, and the brush should be not more than 1½ in. long. It is quite easy with a brush of these dimensions to clean all the exposed surfaces of the teeth in an efficient manner.

Care of Hypodermic Needles.—N. Landsman ("Dental Cosmos," October 1926) condemns the practice of trying to keep hypodermic needles sterile by rinsing them in hot water and placing them in some antiseptic. By this method steel needles rust, and those of precious metals become coated with a crystalline deposit. The plan which the author has found satisfactory is to boil the needle for about ten minutes, remove it with a pair of sterile pliers and place it in a low wide-mouthed jar, the bottom of which is lined with sterile gauze. The jar is then covered to keep off dust. If the needle and hub are attached, water will collect in the latter. The water should be removed by means of a pellet of sterile cotton in preference to blowing a stream of hot air, the sterility of which is open to question. Apart from insuring a safer needle, the author has found that by this method there is a less painful post-operative period.

Influence of Diet on the Spread of Caries.—M. Mellanby and C. L. Pattison ("British Dental Journal," October 1, p. 1045) have continued the researches on the effect of diet on caries in children commenced with J. W. Proud, and referred to in the *C. & D.*, II, 1924, p. 922. The present investigation was carried out on a large number of children, in order, if possible, to extend the earlier results, and an effort was made to limit more of the variable factors of the diets. The children were divided into three groups, and the chief differences in their diets were in the amount of anti-calcifying substance present in cereals, especially oatmeal, and the amount of calcifying vitamin present in milk, egg-yolk and cod-liver oil. The mouths of all the children who were the subject of the test were examined and charted before feeding was commenced. A specimen of the chart used is appended to the paper which shows the elaborate care taken in the investigation. The calmium content of the saliva of the children was also tested at intervals. The experiments were carried out over a period of twenty-eight weeks. The results show the number of new carious teeth developing was least in the group fed on the best diet, greatest in the group receiving the worst diet and intermediate in number in the group receiving the intermediate diet. Actually, in group A_2, receiving the best diet, the number of teeth per child with new caries was 0.47, compared with 2.38 per child in group B_2, receiving the worst diet. It was found that "hardening" of carious cavities occurred in the three groups in a similar ratio to the spread of caries. The authors draw the following conclusions from their investigations: (1) The resistance to caries of erupted and defectively calcified teeth of children can be influenced by certain constituents of the food after digestion and absorption; (2) those dietetic substances which have been found in animal experiments to produce perfect and imperfect teeth are also those which raise and lower, respectively, the resistance of erupted teeth to caries.

Tooth Powders.—F. N. Doubleday ("British Dental Journal," December 1) considers that one of the essentials of a good dentifrice is that it should dissolve mucus. The chlorine compounds have an unpleasant taste which

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is likely to hinder their use by children and young patients, if not among older people. Sodium chloride has been recommended, but it is irritating to the roots of the teeth if there has been any recession of the periodontal membrane. Sodium bicarbonate is an equally good solvent of mucus, and is probably the best dentifrice. It need not be used alone. In any attempt to clean an artificial denture with a polishing material like whitening it would not be successful. Something more abrasive is needed. The author considers the danger of abrasion has been over-emphasised. Precipitated calcium carbonate may be used with safety as an antacid and base, and with an eighth part of sodium bicarbonate as a solvent of mucus. Soap has been employed for this purpose, and expert opinion seems much divided as to its use. Two powdered dentifrices suggested for use are as follows :—

Ac. carbolici ...	... gr. ii.	Ac. benzoici...	... gr. ii.
Thymol ...	... gr. i.	Thymol ...	... gr. i.
O. gaultheriæ	... ♏v.	Ol. cinnamomi	... ♏v.
Pulv. saponis dur....	ʒss.	Pulv. saponis dur....	ʒj.
Sod. bicarb.	... ʒj.	Sod. bicarb. ...	... ʒj.
Calcii carb. præc. ad	ʒj.	Mag. carb. pond. ad	ʒj.

Antiseptics in tooth powders are undoubtedly removed from the mouth too soon to exert much action, but they help to keep the powder free from accidental contamination, and the thymol may exert some action upon the growth of the leptothrix, which has been shown to be the cause of calculus. The precipitated chalk preparation is most suitable for ordinary patients; the heavy carbonate of magnesia is rougher, and is of use in some cases where patients are not successful in keeping their mouths as clean as they should be. Powders should be taken out from a sprinkler or bottle. Acid dentifrices cannot be too strongly condemned.

ESSENTIAL OILS

Oil of Wintera Colorata.—Finlay ("New Zealand Journal of the Science of Technology," 1926, 8, 107) has examined the essential oil distilled from the leaves of the New Zealand pepper plant, *Wintera colorata*. The principal constituent appears to be a terpene having a boiling-point 169°-174°; specific gravity, 0.8449; refractive index, 1.4700; and specific rotation +10.15° in chloroformic solution.

Oil of Myrica Aspenifolia.—According to Braun ("Journal of the American Pharmaceutical Association," 15, 336), 540 lb. of the fresh herb yielded 0.02 per cent. of a dark yellow essential oil, having a specific gravity 0.8945 at 25°; optical rotation −3.75°, and refractive index 1.4627 at 22°. The bulk of the oil distils between 200° and 220°. Traces of an aldehyde are present, which yields a semi-cartazone, melting at 249°. About 25 per cent. of the oil consists of esters, and 17 per cent. of free alcohols are present.

Japanese Camphor Oil.—Koike ("Journal of the Society of the Chemical Industry of Japan," 29, 214, 1926), has isolated a sesquiterpene and two sesquiterpene alcohols from the blue portion of Japanese camphor oil. These bodies have the following characters:—

	Sesquiterpene	Alcohol 1.	Alcohol 2.
Specific gravity $\frac{21°}{40}$	0.9124	0.959	0.964
Boiling point ..	122–125° (12 mm.)	156–159° (18 mm.)	165–169° (18 mm.)
Refractive index 21°	1.5035	1.5017	1.5017
Specific Rotation..	−23.55°	+40.93°	+61.67°

Oil of Ninniku.—On submitting the bulbs of *Allium scorodoprasma*, Linné, var. *viviparum*, Regel, cultivated in Korea, to distillation, T. Kaku ("Yakugakuzasshi," October 1926) obtained 0.195 per cent. of a brownish-yellow essential oil, exhibiting a penetrating and intensely unpleasant odour resembling that of garlic, and a pungent taste. Specific gravity, 1.041 to 1.0884; the oil is optically inactive; refractive index (12.2° C.), 1.5795. Five fractions were separated, in which compounds corresponding to the formulas, $C_6H_{10}S$, $C_6H_{12}S_2$, $C_6H_{10}S_2$, and $C_6H_{10}S_3$, were identified. An acid, melting point 77° C., was found to be present in the fifth fraction.

Oil of Acorus Gramineus.—Kimura ("Journal of the Pharmaceutical Society of Japan," 1926, 531, 37) has examined the essential oil of the rhizome of this plant, from which he obtained 0.5 to 0.9 per cent. of the oil, having the following characters:—Specific gravity, 1.058; refractive index, 1.8522; specific rotation, −0.51°; acid value, 1.3; ester value, 4.49; and ester value after acetylation, 9.84. Palmitic acid and phenolic substances are present. About 86 per cent. distilled between 140°-150° at 6 mm. pressure, and yielded a body having the following characters:—Specific gravity, 1.093; refractive index, 1.5568; optical rotation, 0°. On analysis it was found to be asarone $C_{12}H_{16}O_3$.

New Terpene Compound. — The Japanese plant *Cryptotænia japonica* (an edible herb) is known locally as mitsubazeri. According to Nenokichi Hirao ("Bulletin of the Chemical Society of Japan," April 1926), it contains a low-boiling sesquiterpene and a high boiling sesquiterpene. The former has been named kryptotænene, and the latter mitsubæne. Neither yields a crystalline bromide, hydrochloride, nitrosite, or nitrosate. Kryptotænene is an olefinic terpene, having a specific gravity 0.8123 at 25-40°; refractive index 1.47476 at 25°; and boils at 67-68° at 15 mm. pressure. Mitsutæne boils at 142-143° at 15 mm., and has a specific gravity of 0.9175 at 25-40°, and refractive index 1.5038 at 25°. Its optical activity is +8.3°.

Leptospermum Oils.—A. R. Penfold ("Journal and Proceedings of the Royal Society," N.S.W., LX, 73) has examined the essential oils yielded by the leaves from two forms of *Leptospermum lanigerum*. This plant is a tall shrub fairly widely distributed throughout New South Wales, Victoria, South Australia, and Tasmania. There appear to be two distinct forms, of which one has narrow leaves 1 in. to 1½ in. long, well protected with long silky hairs on both sides, so that when viewed from a distance it appears to possess a silvery sheen. This differentiates it from the other form, which has green, more obovate leaves about ½ in. in length, which yields an essential oil of very different characters from those of the silver leaf form. The leaves of the "silver leaf" forms do not, when crushed between the fingers, emit any particularly characteristic odour, whereas the "green leaf" form yields a pleasant ester-like odour typical of darwinol and its acetic ester, and pinene. The following characters are recorded for oils from the two types :—

	Silver Leaf		
	1	2	3
Yield (per cent.) ..	0.28	0.33	0.33
Specific gravity ..	0.9178	0.9152	0.9231
Optical rotation ..	0°	+10.5°	+6.5°
Refractive index ..	1.4928	1.4890	1.4904
Ester value	12.81	16.29	29.63
Acid value	2	—	—
Ester value (after acetylation) ..	62.59	83.17	100.08
	Green Leaf		
	1	2	3
Yield (per cent.) ..	0.46	0.47	0.67
Specific gravity ..	0.9047	0.9242	0.9148
Optical rotation ..	+30.5°	+32.2°	+30.1°
Refractive index ..	1.4756	1.4783	1.4770
Ester value ..	42.67	56.89	49.13
Acid value	2	—	—
Ester value (after acetylation) ..	92.15	150.32	140.22

The silver leaf oil was found to contain from 60-75 per cent. of sesquiterpenes (aromadendrene and eudesmene); from 16-20 per cent. of *d*-α-pinene; and small quantities of sesquiterpene alcohols, esters of isovalerianic acid, geraniol, geranyl formate, geranyl cinnamate, citral, cineol and unidentified phenols. The oil obtained from the green leaf variety contained from 40-60 per cent. of *d*-α-pinene; 40-45 per cent. of darwinol and its acetic ester, with small quantities of sesquiterpene, sesquiterpene alcohol and esters, and unidentified phenolic bodies.

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Indian Essential Oils.—A series of interesting papers on Indian essential oils by Simonsen and his pupils appears in the "Journal of the Indian Institute of Science" (Vol. 9A, Part VI, pp. 133-148). *Kaempferia galanga* is grown throughout the plains of India and the Malay States, and is cultivated in Java. The oil obtained by distillation from the rhizomes was first examined by Romburgh in 1900. In 1925 Hariharan and Subborough used the oil as a source of *para*-methoxy-cinnamic acid, and the present investigators have confirmed the presence in the oil of ethyl cinnamate, ethyl-*p*-methoxycinnamate, a paraffin hydrocarbon, camphene, *l*-carene, borneol, and methoxystyrene. The yield of essential oil varied between 2.4 and 3.88 per cent. In the early stages of distillation a clear oil came over, but later, on cooling, the distillate set to a solid crystalline cake, and the final runnings were again liquid. The following figures represent oils from which the crystalline ester had been removed at 25° by filtration, except in the case of No. 3, where the oil was cooled to 15°.

No.	1	2	3	4	5
Sp. gr. $\frac{30°}{30°}$ ..	0.8836	0.8878	0.8792	0.8914	1.0174
Ref. index 30° ..	1.4773	1.4780	1.4783	1.4855	1.5428
Sp. rotation ..	—4°	—4.5°	—3.9°	—2.6°	—16°
Acid value ..	0.8	1.3	1.2	0.5	—
Sap. value ..	105.4	99.7	103.4	109	—
Sap. value (after acetylation) ..	116.3	110.1	113.8	115.3	6

Sample 6 was a Java oil, and its specific gravity was determined at 25°. The paraffin hydrocarbon was identified as normal pentadecane, of specific gravity 0.7615 at 30°, melting point 10°, and refractive index 1.4310 at 25°. *Curcuma aromatica* is one of the *Zingiberaceæ*, known as wild turmeric. On steam distillation the disintegrated roots yielded 6.1 per cent. of essential oil, of a greenish-brown colour and of pleasant camphoraceous odour. Over 65 per cent. of the oil consists of a new lævorotatory monocyclic sesquiterpene which has been named *l*-curcumene. It yields a crystalline trihydrochloride melting at 84-85°, a trihydrobromide melting at 73-74°, and a nitrosate melting at 100.4°. The oil also contains *d*-camphene (0.8 per cent.), *d*-camphor (2.5 per cent.), sesquiterpene alcohols 22 per cent., and traces of free acids. The oil had the following characters :—

Specific gravity at $\frac{30°}{30°}$ ..	=	0.9139
Refractive index at 30° ..	=	1.5001
Specific rotation at 30° ..	=	—12.5°
Acid value	=	0.9
Ester value	=	2.03
Ester value (after acetylation)	=	58.66 .

Erythroxylon monogymum.—This plant is known in India under the names "Bastard sandal" and "Red cedar." The oil obtained by steam distillation of the wood does not appear to have been employed or prepared commercially, but the oil obtained by destructive distillation is prepared in Ceylon, and has been used as a timber preservative under the name dummele. Schimmel & Co. examined the essential oil in 1904, and Shastry examined it again in 1923. The present investigators show that it consists of a mixture of sesquiterpenes and sesquiterpene alcohols. Among the former bisatolene was identified by means of its trihydrochloride and trihydrobromide. Cadinene is probably present. The authors could not find any trace of the crystalline sesquiterpene alcohol separated by Schimmel & Co., so that it is probably absent from the oil distilled from Mysore wood. The oil itself had a specific gravity 0.9499 at 30°/30°; refractive index, 1.4998 at 30°; specific rotation, —43.9°; acid value, 5.7; ester value, 22.7; ester value after acetylation, 74.7. A small amount of capric acid in the form of esters was detected.

Oils of Cultivated Eucalypts.—A. R. Penfold ("Journal of the Proceedings of the Royal Society, N.S.W.," Vol. LX, p. 55) discusses the oil of *Eucalyptus Australiana*, which is widely used for pharmaceutical purposes, but the oil from Wyndham districts was useless for this purpose as it contained phellandrene. In order to show that this was due to some constituent of the soil, seeds were collected at Wyndham and sown at Ashfield, near Sydney. The alteration of the optical activity from about —3.6°, as usually found in Wyndham specimens, to about +3.0° shows that the phellandrene has been eliminated. The crude oil was lemon coloured, becoming water white on rectification. It contained only a small quantity of citral. The two specimens of leaves and terminal branches examined gave the following results :—

Yield	$d\frac{15°}{15}$	α_D^{20}	n_D^{20}	Sol. in 70% alcohol	Cineol
2.6%	0.9221	+2.5	1.4634	1.1 vol.	60%
2.4%	0.9223	+3.0	1.4640	1.1 vol.	56%

Among the other oils are the following :—*Eucalyptus Macarthuri*, two samples, on steam distillation gave :—

Yield	$d\frac{15°}{15}$	α_D^{20}	n_D^{20}	Sol. in 70% alcohol	Geranyl acetate	Geraniol	Eudesmol
0.74%	0.9257	+3.5°	1.4696	1.2 vol.	70.2%	6%	16.2%
0.5%	0.9356	+4.8°	1.4771	1.3 vol.	60.9%	3%	25.0%

The yield of oil is exceptionally high, and is no doubt due to conditions of soil and moisture, as samples from the same batch of seedlings grown in other places gave a yield of from 0.2 per cent. to 0.26 per cent. The oil was of a yellow colour and had an excellent odour. *Eucalyptus radiata.*—Samples of this oil gave a high percentage of piperitol, but otherwise were similar to samples from ordinary materials collected in the State. This is probably due to the age of the trees, the seed having been sown in 1918. The following characters were obtained :—

Yield	$d\frac{15°}{15}$	α_D^{20}	n_D^{20}	Sol. in 80% alcohol	Piperitol ester	Piperitol
2.7%	0.8884	—55.4°	1.4771	0.6 vol.	19.5%	20%

Eucalyptus citriodora.—Five samples were taken. The first two were taken from one tree, while the others were made up from four trees. The characters and yields show an extraordinary variation in view of the fact that all the trees are from one group of seedlings. The yield in particular being low for cultivated trees. The five samples gave the following :—

Yield	$d\frac{15°}{15}$	α_D^{20}	n_D^{20}	Sol. in 70% alcohol	Citronellal content
0.84%	0.8607	—1°	1.4498	1.2 vol.	98%
1.00%	0.8657	—1.1°	1.4515	1.2 vol.	95%
0.5%	0.8692	±0°	1.4536	1.2 vol.	95%
0.61%	0.8667	—0.85°	1.4558	1.3 vol.	90%
0.5%	0.8705	—0.25°	1.4547	1.3 vol.	90%

FIXED OILS AND FATS

Oil of Capivara.—The fact that the oil obtained from the adipose tissues of *Hydrochoerus Capibara* is extensively used in Brazil as a substitute for cod-liver oil induced A. Machado and R. A. Dias da Silva ("Medicamenta," August and September 1926) to investigate the composition of this oil in view of its inclusion in the national pharmacopœia at present in course of preparation. It occurs as a yellowish liquid, with a somewhat unpleasant taste and odour; slightly soluble in alcohol, but miscible with ether and with chloroform. Specific gravity (15° C.), 0.9124 to 0.9164; refractive index (25° C.), 1.46788 to 1.46986; saponification value, 196.933 to 197.866; iodine value (Hübl), 98.552 to 107.95; iodine value (Hanus), 97.205 to 115.479; ester value, 194.785 to 195.533; acid value, 1.4 to 3.08. Tests for vitamins showed that the presence of the latter, particularly of vitamin A, was problematical, or that they were present in insignificant amounts in comparison with cod-liver oil; hence there was no justification for its use as a substitute for the latter, and for this reason the proposal to include it in the Brazilian pharmacopœia was rejected.

MATERIA MEDICA

Cotton Plant Constituents.—F. B. Power and V. K. Chesnut ("Journal of the American Chemical Society" October, p. 2721) complete their examination of the cotton plant by an investigation of the non-volatile constituents. The material consisted of branches stripped

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from the coarse woody stems, comprising chiefly foliage, together with "squares" and flowers. This lost nearly 80 per cent. of its weight on drying. The alcoholic extract on distillation with steam yielded a dark aqueous liquid and a black oily resin. The aqueous liquid evidently contained a considerable proportion of reducing sugar, and the following substances were isolated therefrom.—(1) Potassium nitrate and potassium chloride, both in considerable amounts; (2) quercetin; (3) betaine; (4) choline; (5) succinic acid. The presence of a small amount of salicylic acid was also indicated, together with a crystalline acid (m.p. 105°-106° C.), which gave no coloration with ferric chloride. An unidentified neutral crystalline substance (m.p. 140°-143° C.) was also obtained. The crude resinous product, on extraction with various solvents and hydrolysis of some of the extracts, yielded the following additional constituents:—(6) A phytosterol, $C_{27}H_{46}O.H_2O$ (m.p. 135° C.); (7) a phytosterolin (phytosterol glucoside), $C_{33}H_{56}O_6$ (m.p. 218°-223° C.); (8) pentriacontane, $C_{35}H_{72}$ (m.p. 75° C.); (9) palmitic acid; (10) a phenolic acid (m.p. 188°-189° C.); (12) a small amount of a phenolic substance. A mixture of terpenes was obtained on distillation of a portion of the unsaponifiable material *in vacuo* and therefrom were isolated:—(13) Dipentene; (14) an oxygenated compound b.p. 200°-220° C.), apparent formula $C_8H_{10}O$; (15) an optically active dicyclic terpene, $C_{15}H_{24}$; (16) a product evidently consisting of diterpenes, $C_{20}H_{32}$ (b.p. 300°-350° C.). The correctness of the view that the trimethylamine present in emanations from the living plant and in the distillate from the cotton plant was derived from choline as a primary source was confirmed by the above isolation of both choline and betaine.

Greek Liquorice.—In his contribution to the "Tschirch-Festschrift," Em. Emmanuel deals with the cultivation of liquorice and the manufacture of liquorice juice in Greece and in Asia Minor, and includes the following results of analyses undertaken by him in the chemico-pharmaceutical laboratory of the University of Athens:

Dried liquorice root, origin:	Peloponnesus Per cent.	Asia Minor Per cent.
Glycyrrhizin	7.316	5.895
d-glucose	1.516	1.398
Saccharose	2.385	2.678
Dry extract	31.167	30.018
Ash	4.085	5.816
Water	8.117	8.891

Liquorice juice, origin:	Peloponnesus Per cent.	Asia Minor Per cent.
Glycyrrhizin	18.812	12.990
Glucose	3.956	4.875
Saccharose	4.878	5.618
Starch and gum	20.761	22.702
Water	10.695	13.412
Ash	8.011	7.510
Insoluble in water	5.207	8.900
Glycyrrhizin (acc. to Cederberg)	16.811	10.181

Plasmochin.—Three communications on this new remedy for malaria were read at the annual meeting of the Verein Deutscher Naturforscher und Arzte, held in Düsseldorf from September 19 to 25. The only reference to its composition was a statement to the effect that it was related to quinine. The remedy was tested first in connection with malaria in birds. The substances to be examined were introduced into the stomachs of canaries by means of œsophageal sounds. Whereas the range of action in quinine hydrochloride is 1:4, the range of action in plasmochin was found to be 1:30. Also the active doses in the case of plasmochin chloride were much smaller. Only a tenth as much plasmochin as quinine was required to secure the same effect. The parasites are injured by the medicament itself and their development is checked, whereupon they succumb to the natural defence forces of the body. The clinical action of the remedy and the dosage were discussed by Professor Sioli, who tested plasmochin in connection with malarial treatment of patients with general paralysis. In experiments to discover the amount that could be tolerated, doses up to 0.3 gram were given, which were well borne by some, but which caused by-effects in others. As an active dose, he first experimented with 0.15 gram daily, but the action was so marked that the therapeutic dose could be further reduced. With 0.0125 gram of plasmochin daily, however, the action was found to be inadequate. It was finally decided that the administration of 0.02 gram three or four times a day is well tolerated, and is sure to be effective. The by-effects that may occur if a heavier dose is given take the form of a peculiar cyanosis, which serves as a warning to avoid heavier doses. The treatment of ordinary malarial infections with plasmochin was undertaken by Professor Mühlens in the Hamburg Institute of Tropical Medicine, where treatment was given in 134 malaria cases, with exact daily blood control. The quantity administered ranged from 0.05 to 0.15 gram daily, given in several small doses. Apart from the small quantity required to secure the desired effect, another distinct advantage is the fact that the preparation is almost tasteless. The aforementioned daily doses were administered usually for a period of from five to seven successive days, until all the parasites had been eliminated, whereupon, as after-treatment, at intervals of from four to five days, they were given for three days in succession. The whole course of treatment was planned to cover from four to six weeks. The case histories showed that the fever and the parasites disappeared within a few days after the beginning of treatment. It was found that the preparation destroyed, in persisting types of tropical malaria, the crescent-shaped sexual types. Heretofore, no medicament was known that would eliminate within a short time the sexual forms of parasites that were responsible for the transmission of tropical malaria by the anopheles mosquito. In recent cases of tropical malaria with numerous asexual parasites but no sexual forms, the prompt administration of plasmochin prevented in nearly every instance the formation of crescents. To prevent recurrences of tropical malaria also, a special preparation was made up consisting of plasmochin and a small quantity of quinine, to which the name "plasmochin compositum" was given. This combined preparation acted on tropical malaria in such a manner that all types of parasites disappeared from the blood almost simultaneously. For the purpose of control, since most of the patients in the Hamburg Institute of Tropical Medicine had been previously treated with quinine, the remedy was tried in very recent and severe cases in regions in which malaria is endemic: in Bulgaria, Jugoslavia, Greece, Spain and Italy. It has been employed in these countries in more than 250 cases. In tropical malaria, plasmochin compositum dispelled the parasites and the fever within a short time. No recurrences of tertian fever were observed within six weeks; a number of recurrences of tropical malaria were, however, noted. The treatment was applied also to children from 13 to 15 years old; and to infants, to whom the remedy was given in an emulsion. No harm to blood corpuscles was observed in any case. Investigations as to the prophylactic action are in progress.

MEDICINE

Sulpharsphenamine in the Treatment of Warts.—R. L. Sutton ("Journal of the American Medical Association," October 2, 1926) reports that a patient who had previously been under his care several times for the treatment of plane warts of the face consulted him regarding another affection. For the relief of the latter disorder, among other measures, a series of intramuscular injections of sulpharsphenamine was ordered. One month later the author again saw this patient, and in discussing his condition he called attention to the fact that the little warts on his face, which had given him much trouble, had completely disappeared about a fortnight after the first treatment. Since then the author has successfully employed the remedy in five other cases, with satisfactory results. The average dose was 0.4 gram, and only sulpharsphenamine was employed. The drug is dissolved in a minimal amount of sterile water, and

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injected directly into the gluteal muscles. In each instance only one injection was required.

Prophylaxis of Poliomyelitis.—A. F. Hirst ("British Medical Journal," II, 1926, p. 1079) suggests, in view of the prevalence of poliomyelitis, that large doses of hexamine be given to all people who have been in contact with the disease until the incubation period of fourteen days has passed, and perhaps for an additional fourteen days, because of the possibility that the incubation period would be lengthened by the hexamine. At the first suspicion of the disease 100 gr. should be given three times a day instead of the usual 10 or 15 gr. A mixture containing 60 gr. each of sodium bicarbonate and potassium citrate in 1 oz. of water is given after breakfast, after tea, and after a glass of milk last thing at night. The hexamine is given at the same time, but in a different mixture, so that the dose can, if necessary, be varied without altering the dose of alkali. It is perhaps safest to begin with 50 gr. in ½ oz. of water and add a drachm of the solution to each dose every day till the full 100 grains in 1 oz. of water are being given. In the unusual event of bladder irritation occurring the dose of hexamine should be reduced slightly and the dose of alkali further increased.

Specific Treatment of Malaria.—A. G. Alekseew ("Klinisheskaya Medizina," May 1926) is of opinion that the erythrocytes almost exclusively are the vehicle of quinine in the blood, since the drug is readily absorbed by their lipoids. Thus its action is most pronounced when the plasmodia are enclosed in the erythrocytes. This statement disagrees with the old theory that quinine should be given five or six hours before a paroxysm in order to affect the released parasites. Small doses of quinine (under 0.3 or 0.5 gram) exert a tonic, but not a specific, action. The drug is effectual only in large doses, and when given by the mouth. Ingested quinine is eliminated in from twenty-five to twenty-eight hours, that injected intramuscularly in from twelve to sixteen hours, and that introduced by the vein in from eight or ten hours. The author gives 0.5 or 1 gram of quinine twice a day, one dose after a cup of tea, in the morning, the other five or six hours later. The quinine is given at five-day intervals, for three months, sometimes even longer. The treatment is repeated in the spring of the following two years if clinical recovery is not complete. Two injections of neo-salvarsan are added in the course of the treatment, if there are signs of developing resistance to the drug.

Modern Treatment of Varicose Veins.—Professor Montpellier ("Medical Press," II, 1926, p. 379) describes the modern treatment of varicose veins. He writes: In simple cases we now have at our disposal a method which originated with Professor Sicard, who used a solution of carbonate sodium, which he subsequently discarded in favour of the salicylate. This he employs in three strengths, 20 per cent., 30 per cent., and 40 per cent.—that is to say, for 3 c.c. of bi-distilled water, 60 c.g., 90 c.g., and 120 gr. respectively. At each sitting 10 c.c. of the weak solution can be injected, 5 c.c. of the medium solution, or 3 c.c. of the strong solution, in one or several injections. Genévrier, on the other hand, recommends quinine, but the author prefers a 1 in 150 solution of the biniodide of mercury. In all probability the choice of the sclerosing agent is without great importance, the effects being approximately the same when they are properly handled. Biniodide of mercury seems to the author to present certain advantages. The method of treatment is remarkably simple, a 2 c.c. or 3 c.c all-glass syringe with smoothly running piston and fine needle constituting the apparatus. In another paper ("Lancet," II, 1926, p. 662) it is stated that it would appear advisable to proceed with caution before recommending the adoption of the injection method as a routine, for it seems that in other hands, less familiar with the technique, complications have been more frequent than after the usual surgical ligature and excision operation.

Soap as Coryza Preventive.—A. S. McNeil ("The British Medical Journal," II, 1926, p. 856) writes that for fourteen years he has steadily advocated the use of soap as an almost certain preventive of "colds" if used regularly; it is also the most valuable part of the treatment for an established "cold." As a preventive, the author advises patients to get a rather thicker soap lather than usual on the hands when washing, and smear it over the face in the usual way; further, to rub the lather across the nostrils half a dozen times or so, but not to attempt to push any up the nostrils, or sniff it up. They should then proceed to wash the upper part of the face with warm water, and then gently throw several handfuls of the water against the openings of the nostrils—again without sniffing. Then blow the nose, one side at a time, with the finger and thumb, when it will be found that quite a quantity of mucus, inspissated and fresh, mixed with dust and *débris*, will easily come away. Finally, swill off with a little warm water. When a person already has a "cold" in the nose the above method, along with a few acetosalicylic acid tablets, taken at intervals after food, will soon clear up the generalities of "colds" in a normal nose. If there is sore throat as well, then, in addition, a few formalin tablets are a great help. In persons who already have a "cold," their nasal, and often the pharyngeal, mucous membranes are already damaged, and the soap treatment does better with the additional remedies mentioned. The soap should be good toilet soap.

Germ Theory of Disease.—Professor Julian S. Huxley, in the Norman Lockyer lecture for 1926 ("Nature," December 11, p. 844), said that the particular brand of optimism based on the triumphs of serum therapy—vaccination and other forms of immunisation—is passing away. Pasteur and Ehrlich showed how the enemy might be circumvented, even when it was impossible to annihilate it, but, in not taking the human organism into account, these pioneers forgot that it takes two to make a quarrel or a disease. It is now known that the reaction is as important as the nature of the parasitic germ. Genetics at present is an infant, but it is an infant Hercules. It was necessary to make up our minds to a new step in human history—not birth control, but mating control. The bearers of hereditary taint had no more right to reproduce than a boy with scarlet fever to visit all his school friends. The sex mystery was no more, being determined by the size of two kinds of male sperm, the larger being female-determining and the smaller male-determining. Sex control will become an accomplished fact when the technical difficulties of sorting sperms as to size are overcome, which the lecturer ventured to prophesy would be within a few decades. General knowledge of physiology will enable us to modify living processes in accordance with our wishes, to stimulate our faculties without evil after-effects, and to relax without using harmful soporifics. Temperament is more necessary than pure intellect in achieving success. The former is largely an affair of the balance of the glands of internal secretion—thyroid, pituitary, reproductive, adrenal, and the rest. Applied physiology of the future may well discover how to modify temperament.

Iodine and Goitre.—In a recent report to his education authority, Dr. W. M. Ash describes an experiment to test the effect of administering iodine widely in a goitrous county ("Lancet," II, 1926, p. 1022). In a selected area of Derbyshire the public water supply was iodised and iodised sweets were supplied weekly to the children of certain schools, beginning in January 1925. In the first school, where both water and sweets were taken, the percentage of goitrous girls was 24.5 on February 26, and had gone up to 66.9 on December 10. In the second (an infants') school, no iodised sweets were taken, only the iodised water; on February 27 the goitrous percentage was for girls 29.6, for boys 18.6; on December 11, 42.3 for girls and 26.0 for boys. In the third school, where the girls, aged 7-14, received sweets during the first half of the year and iodised water during the second half, the goitrous percentage in February 1925

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was 46.8, and in January 1926 was 51.5. He rejects the assumption that every enlarged thyroid is a diseased condition, and agrees with R. McCarrison that thyroid enlargement in children is frequently physiological and disappears spontaneously. Stress and strain, he thinks, may have something to do with the enlargements, while a nutritional factor may also be at work. Dr. Ash founds his opinions partly on personal observation and partly on the replies to a *questionnaire* circulated by him to doctors practising in Derbyshire. The conclusions reached by him from the study of these replies are as follows: (1) In practically all districts there has been a diminution in prevalence. (2) The proportion of females to males affected varies from 3 to 1 to 10 to 1. (3) Where the water-supply has not been improved the prevalence of goitre has remained stationary. (4) There seems to be a connection between the presence of goitre and hard waters containing sedimentary pollution. Goitre is more prevalent in the limestone districts of the county than on the millstone grit. (5) The type of goitre in the past was the huge cystic and adenomatous goitre. The present type is smaller and softer. Dr. Ash quotes Sir James Berry as an authority who regards the iodine deficiency theory as unproven, and holds that iodine treatment for goitre should be carried out with discrimination and not by wholesale medication. Sir Alexander Houston, who has discussed the question of adding iodine to water-supplies in his last three reports to the Metropolitan Water Board, also advocates caution.

Treatment of Chilblains.—The following methods of treating and preventing chilblains have recently been suggested ("British Medical Journal," II, 1926, p. 917). Dr. E. A. Milner gives: Calcium chloride 10 gr. t.i.d.—instead of lactate—and parathyroid ¼ gr. once or twice daily. Dr. H. V. Cantor summarises a method thus:—The hands may be treated by firmly fitting rubber gloves worn at night; the toes by a cuff of a rubber glove worn around the foot or by a thin piece of sponge rubber held in place by a piece of sticking plaster. The pressure must be firm. Dr. Norman Hodgson reports good results from the following mixture, to be taken for three days during frosty weather: Calc. carb. 66 grains, acid. lact. conc. (s.g. 1.21) 144 min., aq. menth. pip. ad 12 oz.; 1 oz. thrice daily. Dr. Mary G. Cardwell suggests the following: The patient, sitting in a warm room, has two bowls, one of hot water, the other of cold, into which the hands or feet, as the case may be, are plunged alternately, care being taken to finish up with hot water. The part is then rubbed with a warm rough towel and afterwards with olive oil. This should be done twice daily and should be begun in early autumn. Success depends on the conscientious carrying out of the treatment combined with vigorous friction. Cod-liver oil and malt is a useful adjunct. H. W. Barber ("Lancet" II, 1926, p. 1,232) in outlining the modern treatment with regard to drugs states:—The administration of drugs internally for the relief of the chilblain tendency is of far less importance than the prophylactic measures as regards diet, exercise, and sunlight. At the same time their temporary use may be of the greatest value. In the fat type, thyroid gland, and iodine in large doses, bring about striking improvement if persisted with. The latter may be given as the French tincture (French Codex, 1908) dispensed in a drop-bottle and taken in milk, beginning with 5 drops twice daily and increasing up to as much as 60 drops in divided doses per diem. Symptoms of intolerance must be watched for, and when the patient develops a repugnance for the drug, it should be discontinued for a while. Iodicin, or some similar organic combination of iodine may be used as an alternative. Colonic stasis should be corrected by saline or other aperients and liquid paraffin. It is as a rule in the thin, nervous *chétif* patient that calcium salts are most likely to be of benefit, but their effect may well be tried in all cases. They are no doubt best given by injection, but for convenience sake are usually taken orally. There is still considerable scepticism as to the activity of parathyroid gland when given by the mouth, but evidence from independent sources has now accumulated to show that reliable preparations are on the market and that their oral administration does increase the concentration of ionisable calcium in the blood. Cod-liver oil is of unquestionable benefit, particularly in thin patients with a low resistance to infection. Brocq advises a combination of thyroid with pills containing quinine hydrochloride, ergot, and digitalis leaves. Among the local measures for the relief of chilblains, which the author states are clearly of secondary importance, include the immersion of the affected parts in hydrogen peroxide 15 vol., diluted with an equal quantity of hot water, for ten minutes, followed by vigorous friction with a rubefacient such as methyl salicylate ointment or spirit of camphor. Ointments containing ichthyol, iodine, balsam of Peru or storax are also efficient.

OPTICS

Toxic Amblyopia. — F. S. Oliver ("Optician," October 22) points out that among the commoner causes of toxio amblyopia may be mentioned quinine, santonin, alcohol and tobacco. Although reference to the injurious effects of tobacco upon the vision is rarely made without alcohol being charged conjointly, the author is by no means satisfied that the latter could by itself produce anything like the disastrous visual diminution which in the sensitive subject would be caused by nicotine in a short time. He is of the opinion that it would be justifiable, however, to arraign alcohol as an accessory. In view of the above it is of interest to note that Dr. Léopold Bussy, writing in the "Journal de Médicine de Lyon," recently, contends that true tobacco amblyopia does not exist, though nicotine may play a comparatively minor part. He considers English text-books are mainly responsible for the perpetuation of this fiction.

Notation of Lenses and Prisms.—O. Aves ("Optician," September 24) considers the unit strength of one diopter too large for general use, and suggests the following system of notation as being of great value to research workers: (1) The unit of a ¼ diopter is used for indicating every lens strength, whether of spherical, cylindrical or prismatic element; (2) the spherical element is first given by tho number of the diopters multiplied by 4 and prefixed by a letter "P" if convex, or the letter "M" if concave. (Plano counts as zero and is written "O."); (3) the cylindrical element follows the spherical in a similar manner as to strength, and with the letters "P" or "M" placed before them; (4) the axis of the cylindrical is indicated by "A," followed by the axis (on standard notation); (5) if any prism is present it is indicated by the usual prismatic symbol Δ followed by the strength of the prism multiplied by 4, and the angular direction of the base-apex line preceded by the letters BI (base in), BO (base out), BU (base up), or BD (base down), as the case may be. In a subsequent issue (November 5) of the same journal, S. Powell proposes, in regard to prisms, that the present standard of axis notation be extended over the circle of 360°, so that a prism written in this form $R\frac{\Delta 3}{210}$ would denote a 3 prism base out and down 30° for right eye.

PHARMACOLOGY

The Dosage of Thyroid Preparations should be based upon thyroid-iodine content and not upon the equivalent of thyroid itself in desiccated thyroid gland products. This is the conclusion attained from tests on rats by A. T. Cameron and J. Carmichael ("Transactions of the Royal Society of Canada," Section V, Vol. 20, January 1926. p. 1), as the result of examining eleven different desiccated thyroid preparations.

The Acetophenonyl-Barbituric Acids are surprisingly lacking in hypnotic properties, and are all moderately toxic (De Witt T. Keach and A. J. Hill, "Journal of the American Chemical Society," October 1926, p. 2743). This contrasts with the property of the ketone group in other organic compounds, such as acetophenone

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(hypnone). Only 5-ethyl-5-acetophenonyl-barbituric acid (m.p. 248°-249° C.) possesses hypnotic action, this being fairly active but undesirably toxic.

Habituation to Arsenic.—E. W. Schwartze and J. C. Munch, of the U.S. Bureau of Chemistry, conclude that man and the higher animals *cannot* become habituated to arsenious oxide by feeding in increasing doses ("Journal of Pharmacology and Experimental Therapeutics," Vol. 28, September, p. 351). Cats given arsenic in sub-emetic doses vomited once or twice in the early experimental stages, obviously from the cumulative superimposition of effects. Thereafter food intake was apparently regulated by the animals to avoid emesis. Taking the threshold emetic dose as the criterion of habituation, there was a failure of the animals to withstand such doses successfully. These are of much lower concentration than is necessary to produce immediate vomiting and thus afford a fair criterion of the improbability of gastrointestinal habituation towards arsenic.

Toxicology of Soluble Bismuth Salts.—C. S. Leonard and J. L. O'Brien ("Journal of Pharmacology and Experimental Therapeutics," Vol. 28, July, p. 31) tested the toxicity of bismuth by intramuscular injection of soluble salts into rabbits, these producing necrosis of kidney tubules with the attendant nephritic and uræmic symptoms. The maximum tolerated doses in mgm. per kilo body weight were:—Sodium and potassium bismuth tartrate, 100; sodium bismuth citrate, 150; sodium bismuth thiosulphate, 300; corresponding to doses of bismuth of 40, 50, and 200 mgm. per kilo body weight respectively. The tartrate exhibited the greatest initial excretion, but the thiosulphate is equally toxic as the tartrate, but local insoluble depôts are apparently formed of the latter. Sodium bismuth thiosulphate is excreted more rapidly than the insoluble bismuth preparations, but more slowly than the other two soluble salts tested. In general, the higher the dose the lower is the initial excretion.

Atomic Theory and Disease is the title of an article by Dr. Ellice McDonald in the "Journal of the Franklin Institute," October (p. 517). Vital acitivity is defined as a continuance of chemical reactions in a colloid medium. The cell or unit of protoplasm is an acid (PH 6.2-6.8) colloid "particle," surrounded by a semi-permeable membrane in contact with an alkaline medium (the blood plasma, PH 7.4). The cells of the human body act like negative suspensoids, being reversible to cations and controlled by buffer salts. Calcium and magnesium salts produce acid in the blood and other body fluids, whilst sodium and potassium induce alkalinity. The former stimulate the vagus division of the involuntary (vegetative) nervous system, which makes the heart beat slower and the stomach and intestines contract. In contrast, sodium and potassium salts stimulate the sympathetic nerves, producing accelerated heart beat and dilatation of the digestive organs. Diseases may be distinguished as (1) vagus preponderant and (2) sympathetic preponderant. The symptoms associated with vagus preponderance are excess of bi- and trivalent ions, increased hydrogen ion concentration and increased tendency towards oxidation (electron-taking). Sympathetic preponderant diseases are accompanied by decreasing hydrogen ion concentration with increased cell permeability and reduction effects (electron-giving). The above theory is being applied to the treatment of disease, hypertension being benefited by sodium-free diet and by administration of calcium and magnesium salts. Parathyroid extracts are vagus stimulants. All the above accord with hydrogen ion concentration of the blood and smooth muscle reaction, controlling involuntary action, and thereby the unconscious organic processes of living things.

Ephedrine.—K. K. Chen and C. F. Schmidt ("Journal of the American Medical Association," September 11, 1926) draw the following conclusions from the results of their investigations into the action of ephedrine, the active principle of *Ephedra vulgaris* var. *helvetica*, a drug extensively employed in Chinese medicine as a diaphoretic, circulatory stimulant, and sedative: The use of ephedrine as a substitute for epinephrine in therapeutics is based on the fact that the substances are closely related chemically and physiologically. Ephedrine, while less active physiologically, has the advantage over epinephrine of eliciting more prolonged effects, of being effectively absorbed when taken by mouth, and of being a much more stable substance. Its low toxicity and its occurrence in a common Chinese plant are circumstances favourable to its widespread use, should it be found of value clinically. The results of clinical trials of ephedrine so far indicate that it will be found to be most useful as a local application to the nose in cases of chronic congestive conditions such as hypertrophic rhinitis and hay-fever. Of almost equal promise are its effects in asthma. A drug which will control the symptoms entirely, or at least reduce the number of epinephrine injections that are required, and which can be given effectively by mouth, appears to be a real addition to therapeutics. The precise limitations of ephedrine in asthma are not yet evident, but it seems certain that it will be found useful in many, if not in most, cases. As a circulatory stimulant, ephedrine has been rather a disappointment. In chronic hypotension it seems to be of little or no value, and in acute circulatory crises it usually fails to work. Ephedrine may prove valuable in the treatment of anaphylaxis and urticaria, and as a respiratory stimulant in poisoning by narcotic drugs. In the latter connection it seems to be more regularly effective and less dangerous than any other single drug in experimental morphine poisoning.

PHOTOGRAPHY

Bleaching and Reducing Bromides. — C. Lighton ("British Journal of Photography," November 5), as the result of experiments on the yellow stain left by Farmer's hypo-ferricyanide reducer, concludes that the stain is some form of silver deposit or compound. Iodine-cyanide reducer also has certain disadvantages, but the objections to either of these reducers may be overcome by a mixture containing equal parts of a 2 per cent. solution of potassium cyanide and a 2 per cent. solution of potassium ferricyanide.

"Contrast" in Photographic Printing Paper is dealt with at length by Lloyd A. Jones in the "Journal of the Franklin Institute," August, October and November (p. 177 *et seq.*). The object is to specify contrast as a state of difference (or unlikeness) in numerical terms. Two independent factors of contrast are distinguished: (1) The gradient or rate factor; and (2) the altitude or extent factor. The visual impression of contrast is compared with muscular effort in climbing, the latter being proportional to both the altitude (total work) and the rate of energy expenditure (work). The differential of density with respect to exposure $\left(\frac{d\,D}{d\log.E}\right)$ is quite sufficient as a complete designation of contrast as a single point on the characteristic curve, this being the gradient, whilst the range depends upon the difference between the maximum and minimum in the density scale. A careful analysis of errors involved in the sensitometry of positive materials (photographic developing out papers) shows that the reading error is the greatest. However, the total error is still small, and a characteristic curve based upon the average of five sensitometric strips ought not to average more than ± 0.015 as regards density error. With photographic developing-out papers maximum density and maximum gradient are attained in a relatively short time, except for bromide papers. No change is produced in the shape of the characteristic curve on continued development, but a lateral shift occurs, so that contrast must depend upon time of development, unless this is carried on to such an extent that equilibrium in the shape of the curve is attained.

Colouring Cinema Films.—R. J. Garnotel ("British Journal of Photography," November 5) gives formulas and instructions for dye-toning and tinting cinema films.

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For toning, the film is placed in the following bath until completely bleached :—

Potas. ferricyanide	5 gm.
Ammon. bichromate	1 gm.
Acetic acid (3° B.)	25 c.c.
Water	125 c.c.

It is then washed and placed in a solution of sodium bisulphate made as follows :—

Sodium bisulphite lye	10 c.c.
Water	1,000 c.c.

The three basic dyes are : *Blue*, methylene blue; *Red*, rhodamine; *Yellow*, thioflavine. From these stock solutions are prepared by dissolving 2 gm. of dye in 2 c.c. of glacial acetic acid and 200 c.c. of water. By varying the proportion of each solution taken practically all colours are obtainable. The film should remain in the dye bath until the required colour has been obtained, after which it should be washed and dried. Any coloration of the whites which the film may retain may be removed by adding a few c.c. of acetic acid to the last wash water. Dye-toning must always precede tinting. The general formula for making up a tinting bath with an acid dye is : Dye 5 gm., water 1,000 c.c. As soon as the film has obtained the required tint it is quickly washed in water and put to dry. The three chief causes of failure are : (1) Irregular drying, which renders the colour uneven; (2) insufficient washing, causing toning stains and tinted whites; (3) incomplete mordanting, which renders toning uneven.

VETERINARY MEDICINE

Attenuated Sheep-rot Vaccines.—E. Ducloux and G. Cordier ("Comptes Rendus," August 30, 1926) describe the preparation of vaccines which, by attenuation of the virus from sheep-rot pustules with aliphatic aldehydes (formaldehyde, acetaldehyde, or butaldehyde). Little or no reaction followed the injection of one c.c. of pustular preparation containing 0.25 per cent. or less of formaldehyde. Not only were the attenuated vaccines safe in use, but they keep well and confer immunity against injection of virulent material some fifteen days later.

Foot-and-Mouth Disease.—Sir Stewart Stockman and F. C. Minett ("Journal of Comparative Pathology and Therapeutics," September 1926) have, by cross-immunisation experiments in cattle, sheep, pigs and guinea-pigs, confirmed Vallée's conclusions as to the existence of two distinct varieties or types (A and O) of foot-and-mouth virus. Of seventeen strains received during two years from twelve centres of the disease in Great Britain, only one was found to conform to the A type, the remainder being indistinguishable from the O type. The characters of two of the British strains were found to be relatively fixed, since four passages through susceptible species of farm animals other than that from which they originated failed to produce any noticeable modification. Guinea-pigs kept in close contact with cattle suffering from foot-and-mouth disease failed to acquire the infection. Further, in one instance only was the infection observed to pass from infected guinea-pigs to cattle, and in this instance the guinea-pigs' vesicles were intentionally ruptured. It is therefore extremely unlikely that less susceptible rodents, such as rats, can act as carriers.

Distemper.—G. W. Dunkin and P. P. Laidlaw ("Journal of Comparative Pathology and Therapeutics," September 1926) state that in their experiments six different strains of dog distemper caused one type of disease in ferrets. This ran a fairly uniform course, and these strains cross-immunised against each other. The disorder may be passed from ferret to dog and from dog to ferret at will. Apparently dog distemper is a single entity, and the response of the ferret to infection is comparable in all essentials with that of the dog. Dog distemper can be transmitted from dog to ferret, *vice versa*, and dog to dog, by material in which no bacteria can be demonstrated, and which yields no growth of organisms in ordinary culture media. The infecting agent can be passed through bacterial filters, and cannot be cultivated by any straightforward manner so far employed. The authors do not believe *B. bronchisepticus* to be the true cause of distemper, but that it is a secondary infective agent; also, in their experience, pneumonia is very rare in experimental distemper. They consider that in the past different observers have isolated with great frequency a secondary infective agent and assigned to it an undue importance. Animals recovering from the authors' experimental form of distemper should, they think, be immune for life to the natural disease.

Fluke in Sheep and Cattle.—J. H. Norris, in a paper on this subject at the recent annual congress of the National Veterinary Medical Association, states that in the medicinal treatment of fluke-infested sheep and cattle it may be accepted that extract of male fern of good quality gives satisfactory anthelmintic action against adult liver fluke. Its disadvantages are : The difficulty of obtaining a standard extract at a reasonable price, its toxicity in comparatively small doses, and its failure to destroy immature flukes—although this is to some extent overcome by repeated dosing. As regards carbon tetrachloride (*See C. & D.*, September 25, p. 518), its advantages over male fern appear to be : (1) It has given 100 per cent. efficiency against adult flukes in every test; (2) it may be obtained chemically pure at less than one-tenth the price of extract of male fern; (3) there is apparently a much wider margin between the anthelmintic and the toxic dose, especially in the case of sheep; (4) single doses appear to be effective; (5) it may not be necessary to weigh the animals prior to treatment; (6) previous fasting may be omitted. The *Limnæa truncatula*, which is the known carrier of fluke in Great Britain, lives in damp, shaded places such as ditches and low-lying areas. Efficient drainage would be an effective method of reducing the snails and preventing wide migrations. Copper sulphate in a very high dilution is known to kill the snails in laboratory tests. A 1 per cent. solution of copper sulphate has been found to give satisfactory results, but for rough pasture a 2 per cent. solution is recommended, applying up to 120 gallons to the acre. Ditches and ponds require special attention; in the former case, dusting with copper sulphate powder has given satisfactory results; ponds may be treated with copper sulphate in sufficient quantity to form a 1 per cent. solution. The copper sulphate should be applied in June, and at intervals during the summer in wet seasons, care being taken to prevent the copper solution reaching rivers, as it is poisonous to fishes and ducks. Copper-sprayed pasture is not poisonous to sheep one week after application, even if no rain falls in the interval.

Novochimosin.—At the 32nd Congress of the Italian Society for Internal Medicine, held in Padua in October, P. Pozzilli read a paper on enzyme therapy in the treatment of typhoid fever. In thirty-two cases of typhoid and paratyphoid fever the author obtained highly satisfactory results from the administration of a preparation representing the total gastric enzymes. He explains its beneficial action by assuming that the proferments naturally present in the organism require activation by special bodies in order to liberate the actual ferments. In typhoid fever the formation of active ferments occurs too slowly to meet the increased requirements of the organism, which is consequently unable to combat successfully the toxic infection. By introducing the total gastric enzymes at the earliest possible moment, the organism is provided with an effective excess of enzymes, capable of exerting an immunising, as well as an antitoxic, action. Novochimosin, the preparation employed in the clinic of the University of Rome, is an extract obtained by treating, according to a special biological process, the entire stomachs of young herbivorous animals, such as calves and goats. The resulting extract, representing the total gastric enzymes, is mixed with milk sugar, whereupon the mixture is dried at a low temperature. It occurs as a yellowish powder, soluble in lukewarm water, and is capable of peptonising approximately 200,000 its weight of fresh milk.

Personalities

MR. H. BROOKS (Suttley & Silverlock, Ltd.) has removed to 53 Witherington Road, Highbury, London, N.5.

MR. R. A. CROSS, chemist and druggist, Bradford, has passed the Fellowship examination of the British Optical Association.

COUNCILLOR HENRY M. LLOYD, J.P., chemist and druggist, Merthyr Tydfil, has been elected chairman of the local Insurance Committee.

MR. HAROLD F. CABELL, B.Sc., A.I.C., sales manager, Fassett & Johnson, Ltd., London, E.C., has become a member of the Galen Lodge.

MR. ALAN H. WARE, Ph.C., lecturer in pharmaceutics at the Plymouth and Devonport Technical College, gave there, on December 14, a lecture on leather and the materials from which it is made.

SIR JESSE BOOT, Bt., has given a recreation ground and land for the erection of a church at La Grande Charrière, St. Clement, Jersey, and proposes to endow the recreation ground with the sum of £100 a year.

AT Birmingham University, on December 17, the degree of doctor of science was conferred on Mr. Raymond Carter, F.I.C., son of the late Mr. William Carter, chemist and druggist, and of Mrs. Carter, Cross Street, Oswestry.

THE D.Sc. degree of London University has been conferred upon Mr. Thomas H. Durrans, head of the research department of A. Boake, Roberts & Co., Ltd., manufacturing chemists, London, E.15, for a thesis on "The Chlorination of Organic Compounds."

IN Mr. F. H. Carr's reply to the discussion on the paper on vitamins which he read before the Pharmaceutical Society (*C. & D.*, December 18, p. 899) the omission of the word "not" altered the sense of the following paragraph: "Animal tests and medical experience afforded evidence that there could not be an excessive intake of vitamins."

MR. W. W. WAKEFIELD, chemist and druggist, who for the past three seasons has captained England's Rugby football team, has asked the Selection Committee not to consider his name in connection with that post during the coming year, but hopes that his services will be available as a player. Mr. Wakefield is on the staff of Boots, Ltd.

THE council of the Chemical Society has resolved to award the Longstaff medal for the year 1927 to Professor Robert Robinson, F.R.S., Manchester University, for his distinguished researches in organic chemistry. The committee of selection for the Edward Frank Harrison Memorial Prize has unanimously resolved that the prize for 1926, of the value of £150, be awarded to Dr. Charles Robert Harington, University College, London. Dr. Harington has within the last five years synthesised thyroxine; he has also determined its constitution, and worked out a practical process by which it may be produced on a large scale. The presentation of the medal and the prize will take place on March 24, 1927.

Wills

MR. ARTHUR PULFORD, Edgeworth, Horley, who died on October 26, left £66,955 8s. 9d., with net personalty £63,390 9s. 6d. The will and codicil are proved by Mrs. Pulford, the widow, and A. Spencer Jackson, 34 Nicholas Lane, London, E.C., solicitor. He gives the household effects to his wife, £250 to Edith Norton, for long and faithful service, and the residue in trust for his wife during widowhood or until his youngest child attains 25, and then Mrs. Pulford is to receive one-half of the income. Subject thereto he leaves one-fourth of the property each to his sons John Cragg and Miles Cragg, and one-fourth in trust for each of his daughters, Lydia Barbara, and Katherine Monica Broad.

Marriages

ANDERSON—LEWIS.—At St. John's Church, Kingston-on-Thames, on December 18, by the Rev. W. H. Wright, J. Haddow Anderson, son of Mr. John H. Anderson (Potter & Clarke, Ltd., manufacturing chemists, London, E.1), to Hilda May Lewis.

BOUGHEY—WATSON.—At Holy Trinity Church, Stroud Green, London, N., on December 18, by the Rev. Aidan Hancock, B.A., Jeffrey, second son of Mr. A. Boughey, Wilmslow, to Joan Louise, only child of Mr. Ralph H. L. Watson, chemist and druggist, 88 Stapleton Hall Road, N.4.

Silver Wedding

ANDERSON—BOWEN.—At Wesley Church, Melbourne, Victoria, Australia, by the Rev. D. J. Flockhart, on December 18, 1901, John H. Anderson (Potter & Clarke, Ltd.), to Maggie Ray Bowen. Present address: 5 Foulser Road, London, S.W.17.

Deaths

BARR.—At Druimhain, Tower Drive, Gourock, on December 16, Mr. Robert Barr, chemist and druggist, aged eighty-six.

BRUCE.—At 1 Battlefield Gardens, Langside, Glasgow, on December 17, Mr. James Bruce, chemist and druggist (John Currie, Ltd., chemists, 39 Eglinton Street). Mr. Bruce qualified in 1888.

CLARKE.—At 84 Goldthorn Hill, Wolverhampton, on December 8, Mr. Henry Robert Stanhope Clarke, M.R.C.S., L.R.C.P., Ph.C., aged sixty-seven. Dr. Clarke passed the Major examination of the Pharmaceutical Society in 1881, and obtained his medical qualifications twelve years later.

ELWOOD.—At his residence, 8 Abbey Park Road, Grimsby, on December 9, Mr. William Elwood, chemist and druggist, aged seventy-four. Mr. Elwood was in business for a long period in Victoria Street North.

Recent Patents

Abstracts of specifications of recently-granted patents for inventions. The complete specification (1s. each including postage) of any British patent can be obtained from the Patent Office, 25 Southampton Buildings, London, W.C.2, on quoting the name of the patentee and the number of the patent.

Tooth Brush.—A tooth brush for cleaning tooth bridges provided with a handle cranked like a trowel from the end of the brush body, the latter being flat, with a single row of bristles on each side. (W. Thieme and E. Wolff. 253,951.)

Alkyl Resorcinols.—A process of making alkyl resorcinols, consisting in adding resorcinol to a mixture of zinc chloride and fatty acid, and submitting the resulting acyl resorcinal to reduction with zinc amalgam and hydrochloric acid. (Sharp and Dohme. 250,892.)

Acyl Resorcinols. — A method of making acyl resorcinols, e.g., propionyl resorcinol, normal caproyl resorcinol, consisting in adding resorcinol to a mixture of zinc chloride and the corresponding fatty acid, at a temperature between 125° and 145° C. (Sharp & Dohme. 250,893.)

Antirachitic Products.—Edible products, such as carbohydrate foods, fats, oils, and proteins, are subjected to the action of ultra-violet rays for a period sufficient to effect antirachitic activation, but so limited as to avoid destruction of the antirachitic factor. (H. Steenbock. 236,197.)

Anæsthetics and Antiseptics.—A method of producing anæsthetic and antiseptic compounds, consisting in combining esters of aminobenzene carboxylic acids, or their salts, with iodine, or bromine, substituted oxy-aromatic and heterocyclic sulphonic acids, or their salts. (Dr. E. Ritsert. 260,493.)

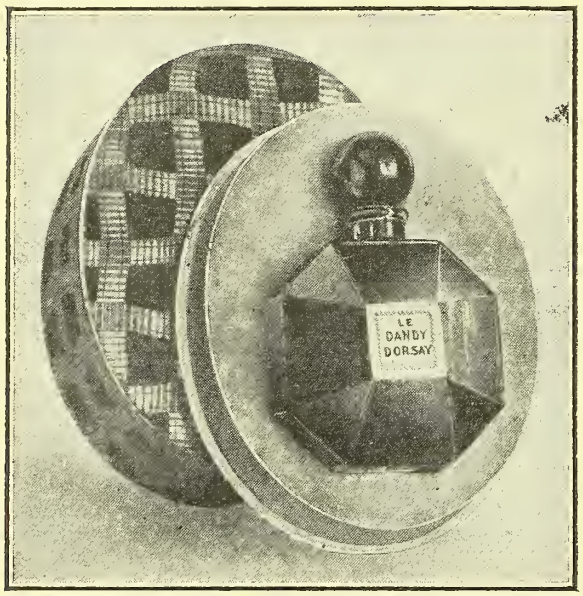
Trade Notes

CLEANSING CREAM.—Florian E. Armand, Ltd., Queensway, Ponders End, call attention to a new preparation, the Armand Eau de Cologne Cleansing Cream. It retails at 2s., and is used for removing grime, dirt, and "make-up" from the skin.

SURGICAL DRESSINGS PRICES.—Since the *Diary* was put to press the prices for "Steraid" gauzes and lints and "Zorbo" superfine absorbent cotton wool (as advertised on page 393) have been considerably altered. The latest prices for these products can be obtained by communicating with Robert Bailey & Son, Ltd., Stockport.

DIARY CORRECTION.—On p. 278 (third column) of the *C. & D. Diary*, 1927, confusion has been caused by the omission, after the four ingredients of Violet Pastilles P.F.20, of the reference "P.F.21," which should be at the head of the next six ingredients. We shall be glad if each subscriber will make this correction in his copy of the *Diary*.

"LE DANDY" PERFUME.—Parfums D'Orsay, Paris, London agency, 54 George Street, Baker Street, London, W.1, have produced a new perfume known as "Le Dandy," which, as shown in the illustration, is packed



in a unique manner. The bottle is of black glass shaped like a cut diamond and is fitted into an oval box lined with yellow velvet. Further details were given in the advertisement in the *C. & D.* last week.

CHRISTMAS HOLIDAYS.—In addition to those given in the *C. & D.*, December 18, p. 895, the following announcements will be of interest:—Ayrton, Saunders & Co., Ltd., Liverpool, will be closed from 12.30 p.m. on December 24 until December 28, and on January 1; A. Bourjois et Cie, Ltd., Blackfriars, London, E.C., will be closed from December 24 to December 29; Brooks & Warburton (American Drug Supply Co.), Ltd., Lexington Street, London, W.1, will be closed from December 24 to 28, and on December 31; J. F. Macfarlan & Co., Bethnal Green Road, London, E.1, will be closed from 1 p.m. on December 24 until December 28.

DIARY ADVERTISEMENTS.—Through the dropping out of the figure "8" on page 22 of *The Chemist and Druggist Diary*, 1927, an error occurs in the advertisement of Arthur H. Cox & Co., Ltd., Brighton. The price for the "Popular" threepenny packings series of pills should be 18s. per gross, and we shall be glad if our readers will make the necessary correction in their copies.—In the Buyers' Guide (on page 156) the name of May & Baker, Ltd., appears under "Mercurome." This should have been under Mercurochrome instead, "Mercurome" being the trade mark of William Martindale, 10 New Cavendish Street, London, W.C.—The page on which the advertisement of Corkwood, Ltd., appears is 440 and not 446, as indicated in the Trade Directory. Will subscribers please make corrections in their copies of the *Diary*?

WELLCOME PHOTOGRAPHIC DIARY.—A gift which is always appreciated by photographers, and consequently should not be overlooked when arranging Christmas and New Year displays, is the Wellcome Photographic Exposure Calculator Handbook and Diary. In the 1927 issue, which is now available, the chapter-headings and decorations are reproduced from woodcuts of Thomas Bewick, 1753-1825, whose work is contemporary with that of the earliest pioneers of photography. A series of thumb-nail portraits of some of these early workers will be found on the pages facing the light tables. All the regular features of the literary portion of the book, such as the articles on development, desensitisation, intensification, reduction, printing and toning have been retained, while the various tables giving the comparative speeds of plates, films, bromide and gaslight papers have been brought up to date. Four editions of the Diary are now issued respectively for:—(1) Northern hemisphere and tropics; (2) Southern hemisphere and tropics; (3) Australasia and tropics; (4) United States of America.

THE MEDICAL DIRECTORY, 1927, has just been published by J. & A. Churchill, 7 Great Marlborough Street, London, at 30s. This deals in separate sections with the doctors of London, English Provinces, Wales, Scotland, Ireland, abroad, and of the Navy, Army and Air Force. The book contains about 2,000 pages of literary matter, and the lists of doctors differ from those in the official register in that the careers of the persons referred to are traced from students' days. This is very useful to the chemist as it enables him to form an idea of the experience and special qualifications of the medical practitioners with whom he comes in contact. In addition the Directory contains much information regarding public hospitals and their staffs, regarding health resorts, massage societies, inebriates' establishments, nursing homes, Panel committees, asylums, sanatoriums, etc. It is altogether a very useful reference book for chemists.

CASH REGISTER COMPETITION.—The National Cash Register Co., Ltd., are offering 250 prizes for the public, four competitions, the prizes being displayed on large Christmas trees in the window of the company's premises at 225 Tottenham Court Road, London, W.1. The competitions are:—(1) To estimate the number of "Nationals" sold during the month of December. As a guide the company state that fifty National cash registers are sold every hour of the working-day. (2) A description (100 words) of a window display of a street scene with a shopkeeper at his door, and the old cash drawer, and a string of people walking away. (3) Estimate the number of "National" tickets issued during the month of December throughout the British Isles. This figure will be based on the quantity of ticket paper sold, and, as a guide, the public are informed that during November this year sufficient paper was sold to enable "Nationals" in this country to issue 15,744,190 tickets. (4) Offers to children 100 prizes for the best coloured drawings of the kind of "National" shown in the window. On the entrance form is printed a picture of this machine. The competition closes on December 31, and winners will be notified. All winners will be invited to the N.C.R. Hall, Tottenham Court Road, for January 8.

Business Changes

MR. C. J. WEBB, chemist and druggist, has opened the Langham Pharmacy, 593 Wandsworth Road, London, S.W.8.

THE offices of the Institute of Ophthalmic Opticians will shortly be moved from Staple Inn Buildings, London, W.C., to Bank Chambers, Holborn, W.C.

MR. J. EVANS, chemist and druggist, 27 Fitzroy Street, Cambridge, has acquired the business of the late Mr. H. Flanders, chemist and druggist, and is transferring it to neighbouring premises.

Observations and Reflections

By Xrayser III

Your New "Diary"

fully maintains the reputation of the long and wonderful series of helpful desk companions which come as such welcome Christmas gifts to *C. & D.* subscribers. Among the special features of the 1927 *Diary* which appeal to me particularly are the concise articles on food preservatives, methylated spirits regulations, accumulator electrolytes, and books for chemists. The last-mentioned is truly a remarkable list, and should prove of the utmost value to anyone in search of suitable books for any purpose connected with our business. A few hours spent in poring over the other new features and the quite up-to-date information on poison regulations will help one to start the New Year fully primed on the various subjects, in addition to which there will be clear mental impressions of the place where information required quickly can be found without delay.

What a Position

has been revealed by the hearing of the Kynaston appeal! (*C. & D.*, December 18, p. 892.) Here we have an instance of public authorities solemnly instituting proceedings for an alleged offence against an Act of Parliament which is not yet in force. A conviction was obtained, but this has been quashed on appeal, the Lord Chief Justice remarking, in the course of his judgment, that the proceedings gave the impression of a person trying to pull a bell when there was no bell handle. This case affords an apt illustration of what is possible when the coming into force of an Act of Parliament is made dependent upon an Order in Council so directing. Parliament shirks its responsibilities by passing Bills which delegate its functions to Government departments, and it is left to officials to decide when Acts shall come into force.

Vitamin Research

was ably summarised by Mr. F. H. Carr in his paper read before the Pharmaceutical Society (*C. & D.*, December 18, p. 897), and even those who are well informed on the subject will find it worth while to go over the ground with him, because he states the facts so clearly. I have found it difficult at times to unravel the exact meaning of statements in original papers and standard works on the subject, some confusion being often due to lack of the art of clear expression by writers who do not take the trouble to consider how matters will present themselves to ordinary readers. But Mr. Carr's exposition is free from reproach in this respect. It now seems to be established that there are five known vitamins—A, B, C, D, E—each of which has distinctive properties. It is well to remember that A and D were formerly regarded as one, because in some quite recent publications D is meant in places where A is actually named. We are told there is a possibility that B may yet prove to consist of two factors, just as happened in the case of the original A, and I have wondered whether the present A may not in time be shown to consist of something more than the growth factor. Be this as it may, we need not be surprised to hear of further additions to the number of differentiated vitamins at present known.

The Therapeutic Trend,

as illustrated by the special series of articles which have appeared in your columns, is full of interest to pharmacists, and particular importance seems to me to attach to the subject-matter of last week's article (p. 907). Everyone needs to know more about the prevention of disease, and doctors and chemists alike will doubtless be as much occupied in future with the application of preventive as with that of curative measures. Sooner or later the study of diet may be expected to occupy as important a place in our curriculum as does the study of medicine, and I think pharmacists will be well advised to get busy in this direction. They ought to know all about the different classes of substances normally contained in a wholesome diet, including the different vitamins or food-accessory factors. Armed with this knowledge, they can hardly fail to find themselves in a better position to be of service to humanity and to reap financial benefit.

Let Regulations

and liability to inspection apply equally to everyone who compounds medicines, particularly those containing poisons, and the time will soon arrive when doctors will be glad to cease dispensing. I agree with your advocacy of this plan last week (p. 907), as I am convinced that many doctors only continue to supply medicines because their patients expect them to do so. If a doctor should give advice without medicine, the result in many cases would be that the patient would go to another doctor and, if the latter were more worldly-wise, he would give some medicine, even though it were not actually needed. Some education of the public will, therefore, be required if all dispensing is to be transferred to chemists, and we may have to help doctors to overcome the deep-rooted habits of many of their patients. But the matter will certainly be simplified if all enactments affecting our dispensing establishments are made to apply equally to doctors' surgeries. This, of course, in the public interest.

Syrup of Fox's Lungs,

concerning which one of your correspondents has been inquiring, and the reports of the observations of Dr. Burn as to the uselessness of some animal therapeutic agents, serve to link the extremities of the ages of medicine together. The continuous demand for such a preparation as the syrup referred to is not remarkable when it is remembered that there are beneficial effects from its use which, however, do not reside in the article which supplies the designation, but in the concomitant ingredients. The notion underlying the applications of animal preparations by our ancestors and by ourselves is identical. It consists in furnishing from other creatures than ourselves—from other species for obvious reasons—the substances in which we are deficient. The methods of preparation and of exhibition are different to-day because physiology and chemistry have taught us how to extract the essential matters and how and where to bring them to bear upon the errant organs. This particular preparation finds a place in most of the old collections of formulas, but it has not for many years had any extensive reputation. Two hundred years ago John Quincy stated that "It has been some time neglected, and is now very little made in the shops." His observations on the origin of the remedy no doubt reflected the educated opinion of practice of his day, for he says that fox's lungs "seem to have been introduced into Medicine from no better grounds than the imaginary efficacy similar parts have over each other; so because a Fox is a Creature which can run a great way and long together, therefore his Lungs must be good to mend those which are hardly able to respire: and no better Pretence have we for making this part of the *Materia Medica*."

In the Course of Time

the recipe for the syrup of fox's lungs, like most other remedial preparations with a history, has changed considerably; but with the exception that the lungs are missing there is some similarity to the original article, that is, if we know what is the original one. We may at one step go back three hundred years to the first "Pharmacopœia Londinensis" (1618), in which it is found as "Lohoch è Pulmone Vulpis." It contained equal parts of prepared fox's lungs, liquorice juice, maidenhair, anise seeds, fennel seeds with fifteen parts of sugar; and it was made into a suitable syrup with coltsfoot water. This formula was adopted from Mesuë junior, that is, Maswijah-al-Marindi, who is said to have died at the beginning of the eleventh century. The formula of Mesuë will be found in the third book of his "De Antidotis"; it only differs from that of the P.L. by not containing anise seeds. For nine hundred years under one denomination or another this preparation has had a more or less extensive use. Mesuë called it an eclegma (at least it was so translated in the Latin editions); then it became a looch (or loch, or lohoch); then a linctus; and now it is a syrup.

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Editorial Articles

A Year of Shocks

UNLIKE the previous year, 1926 has been peculiarly eventful for British pharmacists. The "general strike" in May deprived them of THE CHEMIST AND DRUGGIST for two successive weeks. Never before had it been impossible to print and circulate the paper, and the non-appearance of what should have been our issues of May 8 and May 15 was not the least important of the many serious inconveniences caused in the world of pharmacy. This was the first break in the continuity of our publication since it became a weekly journal in 1886. The appearance of our Annual Special Issue was also necessarily postponed for a fortnight as a result of the strike; the election of the Pharmaceutical Council was deferred until June, because the Post Office could not guarantee prompt delivery of the voting papers in May; the Chemists' Exhibition usually held in London had to be abandoned owing to the disarrangement of traffic and consequent inability to ensure delivery of goods. Much damage was done to commerce by the strike and much trade lost to the country. But the damage and loss were as nothing compared to the evil results of the later trouble in the coal-mining industry, which lasted for so many months and involved the country in almost incalculable losses. Apart from the pharmacists' share as citizens in the trials and troubles due to industrial disputes, they have also suffered as a class through continual Government interference with their business. Not only so, but they are now faced with the prospect of such an attempt to control their affairs as has not been made for more than a century. As unregistered chemists and druggists they had to meet attack then and again later, and it was not until they combined to form the Pharmaceutical Society and became a body of duly registered persons that they won through. But attacks are now being made upon our craft in more insidious ways, by means of regulations in the making of which our chief representative body has no part, though their operation involves pharmacists in trouble under the Act of Parliament in accordance with which they are registered as chemists and druggists. Such regulations have been showered upon us, whilst Government inquiries affecting pharmacists in greater or less degree have been started one after another. Most serious of these inquiries is that being conducted by the Poisons Committee, which has authority to investigate anything and everything connected with the administration of the Poisons and Pharmacy Acts. The external regulations attack pharmacists as individuals, whilst the Government inquiry seems designed to attack their organising centre. Between the two, the position of the British pharmacist to-day is probably as insecure as it could possibly be made, or would be if it were not that prompt steps

THE STRIKE

have been taken to counter the threatened mischief. The Pharmaceutical Council has selected as its representative upon the Poisons Committee one of its best-informed and most capable members, Mr. E. T. Neathercoat, who has taken up this duty in a distinctly serious spirit. Associated with him on the Committee are two other pharmacists, selected by the Privy Council—Mr. F. W. Gamble, of London, as a representative of the wholesale drug trade, and Mr. A. E. Young, of Leicester, apparently as an unofficial person who happened to be the chairman of the Retail Pharmacists' Union. The Committee meets in private, and none of the evidence submitted is to be published. It is understood, however, that matters so far investigated have dealt exclusively with the scheduling, sale and storage of poisons. But the question of the central authority for the purposes of the Poisons and Pharmacy Acts is covered by the Committee's terms of reference, and there is an impression prevailing that proposals may be advanced for transference of control now vested in the Privy Council to one of the Secretaries of State; also possibly for some modification of the existing system, under which administration of the Pharmacy Acts is the duty of the Council of the Pharmaceutical Society. This would not, in our opinion, be to the public interest. We do not assent to the view that the Society is merely a voluntary association, unsuitable by reason of its constitution to exercise such important administrative functions as devolve upon it. The Society was constituted a public body by the Royal Charter granted in 1843; that position was confirmed later by statute, and it is impossible to deny that the Society has always carried out its statutory duties in a spirit of strict impartiality. Suggestions that the Council of the Society should be reconstituted as a pharmacy board have led us to investigate the composition and functions of pharmacy boards and societies throughout the British Empire. The results have been published and show that in no single instance do existing facts justify any interference with the arrangements prevailing in this country. Rumour also has it that an attempt is being made to interest the Poisons Committee in a proposal that a statutory right to the use of the title "chemist" should be conferred upon members of the Institute of Chemistry, and possibly others who do not possess the pharmaceutical qualification. In anticipation of something of this kind we have been at pains to ascertain how long the title has been used by members of the retail drug trade. It has been possible to prove that chemists and druggists have been known as such for nearly two hundred years. In fact, the title "chemist" seems to have been the creation of those who originally made, sold and dispensed chemicals. At first a separate class, they combined later with the druggists, and it was not until a much later period that chemists other than those who kept shops were known. In our opinion, the title "chemist" is the inalienable possession of those who compound and dispense medicines in shops, and particular care must be taken to safeguard it. We look to the Pharmaceutical Society to protect, in this and all other respects, the interests of those who carry on the business of chemists. It should not be overlooked, however, that the Council of the Society is dependent on support given by the pharmacists of the country, and that if an effective stand is to be made against further encroachment on our privileges, the Society must be supported and its leaders stimulated to the utmost. Fortunately, there are marked signs of improvement in the attitude adopted at the Society's headquarters towards would-be encroachers. We are satisfied that a strong fight is being put up in connection with this Poisons Committee inquiry, whilst emphatic protests have been made by the Council of the Society against the latest Dangerous Drugs Regulations. A firm stand has also been taken in the matter of the revision of the British Pharmacopœia, and the Society's affairs generally begin to show signs of inward vitality such as have appeared lacking during recent years. At the annual meeting of the Society, which was remarkable for the attendance from many parts of the country, the discussion made it plain what was the temper of the members, but no particular dissatisfaction was expressed respecting the conduct of affairs except in connection with the library, which is stated to be markedly lacking in up-to-date books of reference, though money is shown by the annual financial statement to be so plentiful. Membership of the Society continues to increase, and there was a larger cash balance in hand at the close of 1925 than the excellent one shown to exist a year earlier. All the old members of Council who offered themselves for re-election were returned, with the addition as a colleague of Mr. John Humphrey, a former officer of the Society, who replaced Mr. H. O. Lloyd. The place vacated by Miss Buchanan had previously been filled by the co-option of Mrs. Freke, of London. At the first meeting of the new Council, Mr. F. E. Bilson, of Bournemouth, was elected President, in succession to Mr. Rowsell. Mr. Herbert Skinner became Vice-President, and Mr. Guthrie was continued in office as Treasurer. Consequent upon the resignation of Sir W. S. Glyn-Jones, Mr. H. N. Linstead was appointed Secretary and Registrar. The services of his predecessor were recognised in a formal resolution adopted at a later meeting, when also Mr. A. H. Jenkin, of London, was co-opted as a member of the Council, to fill the vacancy caused by the lamented death of Mr. A. R. Keith. In June the new Pharmacological Laboratories were formally opened by the Rt. Hon. Neville Chamberlain, Minister of Health, who paid a generous tribute to the public spirit of the Pharmaceutical Society, as displayed in this enterprise. The British Pharmaceutical Conference was held at Leicester early in August. There was an admirable address by the chairman, Mr. D. Lloyd Howard, on the chemical industries of this country, and the scientific papers contributed were of a higher standard than for some time past. They showed a welcome tendency towards specialisation in pharmaceutics, particularly in the characterisation and assay of drugs and the stability of galenicals made from them. Mr. Herbert Skinner read a paper of great constructive value on pharmacopœia production, and Mr. E. H. Simmons dealt with the practical training of apprentices. Of more direct importance at the present time was Mr. E. T. Neathercoat's address on pharmaceutical parliamentary representation. This was followed by a sympathetic discussion, at the close of which it was formally resolved that a special committee ought to be set up to deal with the matter. Later, the Organisation Committee of the Pharmaceutical Council was authorised to organise a special appeal for funds and to invite the co-operation of other bodies interested. The first meeting in support of the appeal was held by the North London Branch of the Society in December, when Mr. Neathercoat, speaking as a prospective parliamentary candidate, gave a stirring address, and a large sum was promised in subscriptions to the Society's Parliamentary Fund. In Ireland both the Pharmaceutical Societies have made steady progress during the year, despite special difficulties which exist, both in the Irish Free State and in Ulster. The Pharmaceutical Society of Ireland has celebrated its jubilee, and a series of illustrated articles

POISONS COMMITTEE

THE TITLE CHEMIST

THE SOCIETY'S WORK

THE B.P.C.

has familiarised our readers with the history of this older representative body in Irish pharmacy.

OTHER SOCIETIES

The Pharmaceutical Society of Northern Ireland has got into fair working order, and the conduct of its affairs is being marked by much enthusiasm and energetic action. Reciprocity is again in the air, and Belfast is in communication with London on the subject. The Retail Pharmacists' Union has moved into new premises in Queen Square, London It has had a busy time during the year, dealing with many trade matters in addition to its Insurance Prescription Checking work, which now includes keeping a watch on the arrangements for testing the dispensing of medicines. The R.P.U. is among the bodies which have volunteered to give evidence before the Poisons Committee, of which its chairman, Mr. A. E. Young, is a member. Mr. H. E. Clement, of Hampton Hill, has been co-opted to fill the vacancy on the R.P.U. Executive, caused by the death of Mr. A. R. Keith. The Proprietary Articles Trade Association has also acquired new offices, being now lodged in sumptuously furnished premises in Gordon Square, London. Sir W. S. Glyn-Jones has vacated the position of Secretary and been appointed Chairman of Council, with Mr. H. E. Chapman as General Secretary, and Mr. J. A. Kenningham as Organising Secretary. The many years' service as Treasurer of the P.A.T.A. by Mr. George Barclay has been marked by a presentation on his retirement from office. Meanwhile, Sir William Glyn-Jones is busily engaged in organising the Canadian P.A.T.A., and he is not likely to be spending much time in this country. Pharmaceutical associations throughout Great Britain have recovered much of their vitality and are proving, in certain respects, more useful than the Pharmaceutical Society's subsidised Branches. Both Associations and Branches have developed the social side, and festivities of one kind or another appear to have been more numerous than ever, while sports have also been largely utilised as a means of bringing pharmacists into closer personal communion. The Royal Commission on National Health Insurance has presented its report, and it is gratifying to record that it passes no adverse criticism upon the work of chemists as dispensers. It is emphasised in the report that it is not desirable in the interests of insured persons to lower the standard of qualification required for those who dispense medicines. The Commissioners also state that support was lacking for the allegation that doctors or chemists give to insured persons an inferior service. The Labelling of Poisons Order came into force at the beginning of the year and found pharmacists generally prepared to meet the new situation. But it has since been necessary to give careful consideration to many points arising in connection with the labelling of certain preparations, and we have been much occupied in advising our readers on such points as they arose. Several manufacturers of proprietary preparations have given helpful assistance in this matter; others have been somewhat reluctant to admit liability in this respect, and there is some disposition to challenge particular interpretations of the Poisons Schedule. Mr. J. Rutherford Hill has rendered invaluable service by his comments on new poisons legislation, and it is possible that revision and simplification may result from the expression of his and other views in evidence submitted to the Poisons Committee. The time is undoubtedly ripe for such revision and simplification. Meanwhile the *C. & D.* has been helping pharmacists by means of the Poisons Cards and in other ways to unravel complications due to the "unintelligible" Poisons Schedule and badly drafted regulations. Poison problems threaten to vex the pharmacist for some time to come, but we shall continue in our endeavour to solve them quickly and effectively. In the same spirit of desire to elucidate matters of importance to the craft, we have published various articles dealing with the results of special investigations. Amongst the subjects so dealt with have been the following:—"Compiling a Pharmacopœia," "Biological Standardisation," "Medical Research," "The Trend of Therapeutics," "Pharmaceutical Societies Abroad," "The Title Chemist and Druggist." We have also dealt with four new pharmacopœias, the United States, Russian, Mexican and Dutch, as well as the fifth Supplement to the French Pharmacopœia. Innumerable book reviews have enabled our readers to taste before buying; the quarterly series of scientific and technical abstracts have enabled them to keep their information up to date; and the Commercial Compendium has steadily progressed as an all-round work of reference for the busy pharmacist. Our claim to cater for every section of the drug-trade has, we think, again been justified. The series of articles on modern physico-chemistry, the most ambitious that we have ever undertaken, and which concludes in this issue, was intended as a post-graduate course for those chemists who have not been able to follow the rapid changes in the last few years in the basis of chemistry and physics, but yet maintain their interest in these sciences upon which practice is built. Many appreciations have been received from men whose opinions on this subject are worth having. Several scientific readers have expressed their intention of re-examining these atomic conceptions at their leisure. The articles thus continue the *C. & D.* tradition of permanent benefit in pharmacy, which makes its files so valuable a source of reference compared with the ephemeral newspaper. On the more commercial aspects are the articles on making dispensing pay, shop-window displays, modern solvents, and means of increasing trade. The "beauty culture" formulas given in August were a valuable series of modern recipes, which only a journal with the resources of the *C. & D.* can publish. The Trade Report and the *C. & D.* Retail and Dispensing Price List, covering drug prices from the time the drugs are gathered or manufactured to the handing over of the finished articles to the public, have functioned with unfailing regularity and precision, so far as we have had control of circumstances. Our record of deaths has again been a full one, including many notable persons.

C. & D. ACTIVITIES

OBITUARY

Mrs. Clarke-Keer was the first woman-pharmacist to qualify in Great Britain; Mr. C. J. Radermacher had Michael Carteighe as an apprentice; Mr. J. H. Maiden was formerly Director of Botanic Gardens at Sydney and had been engaged for many years on that monumental work, "A Critical Revision of the Genus Eucalyptus"; Mr. A. R. Keith was the well-known member of the Pharmaceutical Council and other executive bodies; Mr. C. A. Johnstone had been a director of James Woolley, Sons & Co., Ltd., Manchester; Mr. Charles Turner was formerly Principal of the Manchester School of Pharmacy; Mr. A. W. Gerrard served for some years on the London Board of Examiners and was widely known; Mr. John Harrison, of Sunderland, had been Vice-President of the Pharmaceutical Society, and formed a connecting link with the old Chemists' and Druggists' Trade Association of Great Britain; Mr. W. F. Wells was a former President of the Pharmaceutical Society of Ireland; Mr. John Whitfield, of Scarborough, was a well-known personality who had enjoyed the friendship of many past leaders of the craft; Mr. F. H. Glew was noted for his important work with radium; Mr. H. W. Shillinglaw had been Registrar of the Pharmacy Board of Victoria; Dr. A. B. Lyons, Detroit, was the author of the "Manual of Pharmaceutical Assaying"; Sir James

Cantlie had addressed pharmacists' associations in London; Mr. F. B. Wride was a leading pharmacist in Southampton; Mr. F. N. Layman, a director of Wright, Layman & Umney, Ltd.; Prof. A. R. Cushny, the distinguished pharmacologist; Prof. H. K. Onnes liquefied helium; and Sir William Tilden, F.R.S., the first Bell scholar. Some other names in our mournful list are those of Mr. J. Bell, Manchester; Dr. George Booth, Chesterfield; Mr. A. D. Breeze, Plymouth; Mr. A. Buswell, Lutterworth; Mr. T. Byass-Jones, Ealing; Mr. George Carr, Sheffield; Mr. R. J. Dodd, Harrow; Mr. T. Edmondson, Penrith; Mr. Bernard Ellis, Sheffield; Mr. G. J. Gostling, Stowmarket; Mr. Alfred Gratte, Monmouth; Mr. F. Guy, Brighton; Mr. R. Harrison, Sunderland; Mr. S. B. Hardcastle, Brighton; Mr. J. Hayllar, Hoddesdon; Mr. J. P. Hewitt, Sheffield; Mr. F. Ibbotson, Blackpool; Mr. W. A. Jones, Liverpool; Mr. G. S. Kitchin, Glasgow; Mr. R. B. Leigh, Brighton; Mr. A. S. Marsh, Leicester; Mr. F. J. Oliver, Maidstone; Mr. W. F. Pasmore, London; Mr. Lawrence Priestley, Newark; Mr. J. A. Radford, Birmingham; Mr. H. M. Read, Leeds; Mr. W. Prior Robinson, Whitby; Mr. J. A. Russell, Glasgow; Mr. W. W. Savage, Brighton; Mr. H. A. Thompson, London; Mr. J. H. Wakefield, Birmingham; Mr. W. H. Watkinson, Congleton. Once again we have occasion to make particular reference to a former esteemed colleague, by whose death the world of pharmacy is left so much the poorer: Mr. C. E. Lord was for many years our valued Paris correspondent, and in that capacity made for himself a unique reputation.

Almanacs and Calendars

BURGOYNE, BURBIDGES & CO., LTD., manufacturing chemists, London, E.6, send out a desk calendar (4 in. by 4¾ in.), smartly framed in red and gold, with one month's dates on each leaf. It can be hung if preferred.

JONATHAN FALLOWFIELD, LTD., photographic apparatus manufacturers, Newman Street, London, W.1, distribute a neat wall calendar (7½ in. by 6½ in.), with the days of the month arranged in a circle with a revolving indicator for daily use, the day and month being shown in squares.

LAWRENCES, chemists, Great Charlotte Street, Liverpool, give customers the choice between two wall calendars. The larger of these (9½ in. by 12½ in.) has as its central feature a handsome colour print of a fishing village; the smaller one (11½ in. by 7¼ in.) comprises twelve tear-off leaves, each adorned with a view printed in sepia.

THOMAS MORSON & SON, LTD., manufacturing chemists, London, W.C.1, issue a wall calendar (14½ in. by 11 in.) on art paper, with an attractive and unusual subject for its pictorial centrepiece. This is entitled "Morson's First Apprentice, 1835," and shows a very young man in a picturesque yet quite credible laboratory of that period.

TURKISH OPIUM.—In spite of the fact that Turkey is one of the most important producers of opium, the cultivation of the poppy is still restricted to a comparatively small area, and in consequence of the depopulation of certain districts during the past years, coupled with the indolence of the rural element, scant attention has been paid to developing this lucrative branch of agriculture. At present, the poppy is cultivated chiefly in the district of Afion Karahissar in the vilayet of Smyrna, in the districts of Amassia, Gumuch, Hadji Keoy, and Bali Kesser, where conditions are particularly favourable. The chief customers for Turkish opium are, in their order of importance: Germany, United States, Switzerland, Great Britain, Italy, Rumania, Japan, France, Netherlands, Egypt and Greece. Exports of opium during the past three years were as follows: 1923: 385,019 kilos; 1924: 202,633 kilos; 1925: 267,901 kilos.

Associations' Winter Session

Belfast.—A meeting of the Executive Committee of the Ulster Retail Drug Trade Association was held on December 14, the President (Mr. James Macauley) presiding. Other members present were: Messrs. W. J. Rankin, J. C. Culbert, H. Lancashire, R. I. Edwards, A. W. Mann, J. Taggart, D. A. Taylor, S. Orr, E. J. Roberts, J. McDowell, H. Crail, J. Guthrie, J. McRoberts and F. Boyle. The question of wholesale houses supplying articles to (*a*) retail customers at wholesale rates, (*b*) supplies of patent medicines to grocers who are known to be underselling, formed a lively discussion. It was stated that the turnover in trade by members has been reduced; therefore some better understanding must be forthcoming from wholesale distributing houses if the drug trade is to maintain its legitimate trade. A long list of "cutters'" names was read over, and articles enumerated which proved that these traders are still receiving stocks, although their names are on the stop list for the past few years. The discussion was adjourned. The Committee also had before them some information of low-grade disinfectants now on the market, and recommended that members sell a standardised article. A question of adopting a universal formula for "chlorodyne" was referred to the Business Committee.

Birkenhead.—A meeting of the Birkenhead and Wirral Pharmacists' Association was held on December 8, at which there was a good attendance of members. The president (Mr. W. G. Snow) was in the chair. Mr. Mallinson (Secretary of the Retail Pharmacists' Union) was the speaker, and gave a discourse on *The Work of the R.P.U.* A vote of thanks to Mr. Mallinson was afterwards proposed by Mr. Cooling.

Dundee.—A meeting of the local branch of the Scottish Pharmaceutical Federation was held on December 16, Mr. C. Stephen, Ph.C., presiding. A discussion took place on a proposed scheme for marking goods with a Federation trade-mark to indicate that they are sold by chemists only. By a majority it was resolved to observe the Wednesday half-holiday in Christmas week as usual. The tendency of some insurance companies to pass over chemists for optical work was discussed, and it was decided to watch developments.

Newport (Mon.).—At a special meeting of the Newport Chemists' Association, held on December 15, a chain of office (in gold and coloured enamel) was presented to the President (Mr. J. H. Jackson) by Mr. C. C. Giles, the senior member of the Association. Accompanying the presentation was an address placing on record the members' deep appreciation of Mr. Jackson's services. Mr. Jackson thanked the members for their kind remarks.

Public Pharmacists.—The Guild of Public Pharmacists held a meeting on December 11, when a demonstration of *Pharmaceutical Sterilisation* was given at the London Hospital. The details of the various methods used for securing the results aimed at were explained by Mr. A. J. Smith, Ph.C. On December 17 a further meeting was held at the London Hospital, where the various types of pharmaceutical apparatus and machinery, there installed on a factory scale, were inspected by over sixty members and friends. The visitors were welcomed by the President (Mr. F. A. Hocking, M.B.E., B.Sc., pharmaceutist of the hospital). At a Council meeting, held during the evening, one new member was elected, and Messrs. J. Langford Moore, G. W. Gibson and E. Williamson were appointed a subcommittee to act as judges in the prize competition.

Southend-on-Sea. — The Southend-on-Sea Association of Pharmacists held a meeting on November 11, under the presidency of Mr. F. H. King, to hear addresses by Mr. C. Smalley (Retail Pharmacists' Union Executive) on *The Testing of Dispensing* and *Spirits and their Use in Pharmacy*. Mr. Smalley explained in detail the procedure adopted in the carrying out of dispensing tests, and on the recent regulations concerning the use of industrial spirit by retail pharmacists. A discussion upon both topics followed, and a vote of thanks was passed to Mr. Smalley.



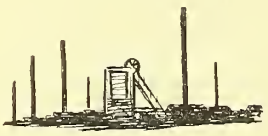
Mr F. E BILSON, THIS YEARS PRESIDENT OF ---



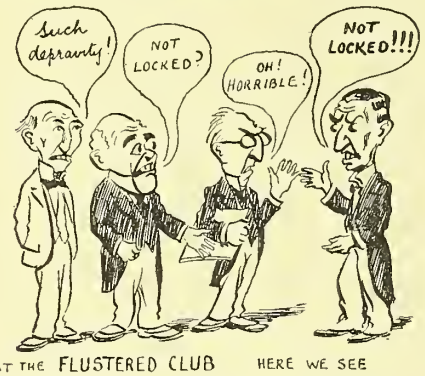
THE PHARMACEUTICAL SOCIETY.



Mr HUGH N. LINSTEAD, THE NEW SECRETARY



THE YEAR 1926 HAS SEEN A GENERAL STRIKE, AND PROLONGED STAGNATION IN THE COAL FIELDS, BUT FEVERISH ACTIVITY IN WHITEHALL ———



AT THE FLUSTERED CLUB HERE WE SEE THE BARON DE MORPH, THE COUNT OF COCKAGNE, SIR DUNCAN DOPENOSE, AND SIR OLIVER FLUSTER.



ARMS OF THE FLUSTERED CLUB.

PASS THE REGULATIONS PLEASE

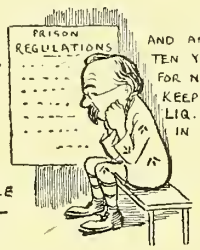
PASSWORD OF THE FLUSTERED CLUB.



A NERVOUS PHARMACIST WHO COMES OUT IN SPOTS WHENEVER HE THINKS OF THE HOME OFFICE —

HE WONT DISPENSE ANY DANGEROUS DRUGS UNTIL HIS SHOP IS CLOSED FOR DINNER —

LEST AN INSPECTOR SHOULD POP IN, AND, NOTING HIS NERVOUS DEMEANOUR, GET HIM TEN YEARS FOR NOT HAVING HIS RECEPTACLE LOCKED ———



AND ANOTHER TEN YEARS FOR NOT KEEPING HIS LIQ. MORPH IN IT.



FOR, LEGALLY SPEAKING, IT IS NOW A CRIMINAL OFFENCE TO UNLOCK THE RECEPTACLE! (SEE D.D. REGULATIONS Nº 996, JULY 29 1926 PRICE 1D NET.) HAVE WE TO CLIMB THROUGH THE KEYHOLE, OR ARE WE KINDLY PERMITTED TO USE OUR COMMONSENSE?

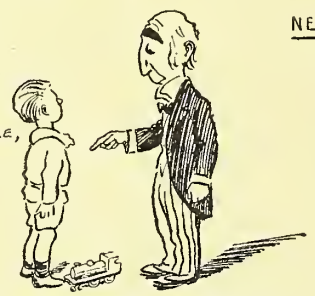
ANOTHER POINT (IN ALL SERIOUSNESS), A CHEMIST WHO SELLS AN OUNCE OF SALTS OF LEMON ONE MINUTE AFTER CLOSING TIME, AND IS FINED FOR SO DOING, IS NOT LAWFULLY KEEPING OPEN SHOP, NOW THEREFORE, QUA, AS SUCH, AND AD HOC, HE IS LIABLE TO HAVE HIS D.D. AUTHORISATION WITHDRAWN WHICH MEANS RUIN!



BEFORE SELLING THE SALTS OF LEMON.



AFTER THE LAW HAS TAKEN ITS COURSE.



THE HOME OFFICE IS NOW DEVOTING ITS ENERGIES TO KIDDIES' TOY ENGINES (SEE DAILY MAIL DEC. 8.) HERE IS A NEW FIELD IN WHICH THE DEAR FELLOWS CAN BROWSE TO THEIR HEARTS' CONTENT. WHAT ABOUT A FEW REAMS OF REGULATIONS?

NEXT YEARS REGULATIONS

WILL PROVIDE FOR A BLUE RIBBON AND BELLS FOR PART I POISONS,



AND A 200 VOLT CURRENT ATTACHMENT FOR DANGEROUS DRUGS.





SIR W. JOYNSON HICKS, HOME SECRETARY. WE SHOULD LIKE TO KNOW HIS PRIVATE OPINION ABOUT THESE JAZZ-BRAINED REGULATIONS!

Granville Shaw 1926

Pictorial Review of the Year

By Granville Shaw, Ph.C.

Trade Report

The prices given in this section are those obtained by importers or manufacturers for bulk quantities or original packages. To these prices various charges have to be added, whereby values are in many instances greatly augmented before wholesale dealers receive the goods into stock, after which much expense may be incurred in garbling, packing, etc. Qualities of chemicals, drugs, essential and fixed oils, and many other commodities vary greatly, and higher prices than those here quoted are charged for selected qualities of natural products even in bulk quantities.

42 Cannon Street, E.C.4, December 22.

OWING to the approach of the Christmas holidays this week our Trade Report closes a day earlier than usual. Buyers appear to have fulfilled their requirements for the year, and it is unlikely that there will be any real demand until after the turn of the New Year, when stocktaking operations have been completed. Even the liquidations of stocks pressed for sale do not find ready buyers, but we understand that cascara sagrada has been readily taken up at advantageous prices. The position of the drug otherwise is firm. The apparently strong position of the franc and lira has affected business considerably during the past few weeks. Price movements include higher values for chillies and cocoa butter. Cloves are a shade firmer. Euonymus bark of root and rhubarb are dearer. New crop areca nuts are quoted at cheaper rates. Hydrastis is also on the easy side. Menthol has been of interest and is firm. Methylated spirits are cheaper. Cod-liver oil is easier. Rubber is firmer on the week. Among the essential oils, American and Japanese peppermint are dearer, the latter being fairly active. Bergamot is dearer, but lemon has declined. Patchouli oil is a shade cheaper. and rosewood is also easier. There are few changes to report in the pharmaceutical chemical section. British makers have reduced the price of ethers and certain spirituous preparations. Salicylates are tending easier, including methyl salicylate. The demand for aspirin and phenacetin continues fair. British makers announce a reduction in vanillin. Among the industrial chemicals, borax and boric acid have also been reduced. Caustic potash is cheaper. Cream of tartar is dearer. Arsenic has advanced.

Higher	Firmer	Easier	Lower
Chillies	Arsenic	Acid oils	Areca nuts (c.i.f.)
Cocoa butter	Bergamot oil	Anise (Russ.)	Borax and boric acid
Peppermint oil (Amer. & Jp.)	Castor oil	Antimony	Ethers, pure and meth.
Sodium Sulphide	Cream of tartar	Cod-liver oil	Lemon oil
	Euonymus bark	Cotton oil	Palm oil
	Palmarosa oil	Formic acid	Spirit, methylated
	Rhubarb	Hydrastis	Vanillin
	Rubber	Methyl salicylate	
	Viburnum prunifolium	Patchouli oil	
		Rosewood oil	
		Salicylic acid	
		Soya oil	
		Xylol	

Crude Drugs, etc.

AGAR-AGAR is quiet but steady on the spot at 3s. 9d. per lb. for No. 1 Kobé.

ALOES.—Curaçao in cases is quoted to arrive at 52s. 6d. per cwt. c.i.f.

ANTIMONY has been dull and drooping, consumers being indifferent, and quotations for spot parcels of Chinese now range from £65 to £66. Terms for shipment have been dropped to about £51 10s. c.i.f., but there is practically no interest at the moment. English high-grade refined remains at £74 10s. to £75. Crude metal is quite nominal.

ARECA NUTS.—New crop, December-January shipment, is quoted at the cheaper rate of 42s. per cwt. c.i.f.

BISMUTH.—There is a steady demand at the "pegged" price of 10s. per lb. Total U.K. imports for 1925 amounted to 379,652 lb., against 481,677 lb. in 1924. Exports of refined metal for 1925 were 221,049 lb., against 388,892 lb. in 1924.

CADMIUM.—There is a good demand for Australian metal at 1s. 10d. per lb., and current supplies are fairly well absorbed on that basis. Quotations for American range from 1s. 10½d. to 1s. 11d. per lb.

CASCARA SAGRADA.—It is reported that forced sales have been made recently at cheap rates. On the spot nominal value of 1924 peel is from 77s. 6d. to 80s. per cwt.

CLOVES are quiet, but slightly firmer, Zanzibar offering on the spot at 9½d. to 9¾d. per lb. To arrive, October-December shipment has sellers at 9d., and January-March shipment at 8½d. per lb. c.i.f. The landings in London during the week ended December 18 were 100, and the deliveries 243, leaving a stock of 8,124 bales, against 12,686 bales in 1925, and 15,427 bales in 1924. Up to December 18 the landings of Zanzibar in London have been 11,610, against 18,891 in 1925, while the deliveries amount to 17,686, against 21,309 last year.

CHILLIES.—A further advance is recorded in Mombasa, for which 70s. per cwt. is wanted on the spot.

COCOA BUTTER is dearer, CFR being quoted at 1s. 7d. per lb. and prime English 1s. 6½d., in not less than one-ton lots.

COD LIVER OIL.—With a view to the clearance of stocks before the commencement of the new fishing there appears to have been some cutting of prices among Norwegian refiners, with sellers quoting about 119s. per barrel, c.i.f., for finest non-freezing Lufoten 1926 oil, and 118s. per barrel ex wharf London. Our Bergen correspondent writes, on December 14, that, as is usual at this period of the year, the market is at a standstill, with only hand-to-mouth business.

EUONYMUS BARK OF ROOT is firmer on the spot, 2s. 9d. per lb. being quoted.

HYDRASTIS is easy at from 21s. to 21s. 6d. per lb. on the spot.

LOBELIA is firm at 4s. 9d. per lb. on the spot.

MAGNESIUM is in steady demand at current rates, ranging from 3s. 9d. to 4s. 3d. for small ingots and sticks, and powder sells at about 5s. to 6s. per lb., according to quantity and quality.

MENTHOL has been of interest this week, particularly the January-March position, with buyers at 16s. 9d. per lb. c.i.f.; sellers, 17s. c.i.f. October-December is also 17s. c.i.f. Spot is firm at 17s. 9d.

MERCURY.—There has not been a great deal of business, but the position is quite firm, offers being rather sparingly made of spot parcels, which sold at £17 10s., and occasionally £17 15s. was paid for small lots, less the usual discount. Parcels to arrive have been offered at 2s. 6d. to 5s. less. Buyers, of course, are anything but eager to cover their needs at the high price. The American market was reported very firm. U.K. imports for last month amounted to 2,799 bottles, this making an aggregate of 14,302 bottles for eleven months, compared with 18,521 bottles for the same period last year. The re-exports for eleven months were 2,325 bottles, compared with 3,749 bottles for January-November 1926.

RHUBARB.—A fair business has been passing in Canton, which has been selling at from 2s. 3d. to 2s. 6d. per lb. Good bold Shensi, which is scarce, has been selling at 3s. 9d. Firmer prices for High-dried are fully maintained at from 1s. 9d. to 2s. c.i.f.

RUBBER.—Conditions continue to rule on the quiet side, but there is generally a better tone all round. Spot, after touching 1s. 6¼d. last week, was decidedly firmer on Monday, and at one time reached 1s. 6⅞d. It appears that for the "near" positions a "bear" account has been created, and in spite of the heavy accumulation of stocks the spot parcels available of standard quality are very limited. Conditions both in Singapore and New York are steadier, and a fair amount of forward rubber has been bought by New York during the past few days. The London stocks show an increase of 974 tons on the week, making the total 47,222 tons. It will be interesting to note that at the corresponding period last year the stock amounted to only 5,371 tons. Quotations (Tuesday, 5 p.m.): No. 1 standard ribbed smoked sheet, spot and December, 1s. 6⅝d., January-March 1s. 7d., April-June 1s. 7⅛d. per lb.

SEEDS.—The market has been extremely quiet, with very little business passing, and prices remain the same as last. ANISE.—Russian is a little easier at 31s. per cwt., and Spanish at 49s. CANARY SEED.—Mazagan is still very slow, with sellers at 17s. spot and 16s. 6d. c.i.f. Saffi, 16s. 6d. spot, and good bold Spanish 30s., and small 24s. CUMIN SEED.—Maltese is 30s. to 35s. spot, and Morocco 29s. CORIANDER SEED is 20s. spot, and 21s. 6d. is quoted c.i.f. FENUGREEK SEED is 15s. spot and 14s. 6d. c.i.f. DILL SEED is 21s. 6d. spot and 19s. c.i.f. HEMPSEED.—Manchurian, 14s. 6d. LINSEED.—Mazagan is 20s. spot. MUSTARD SEED.—English is 31s. 6d. per cwt.

SHELLAC is firmer, usual standard TN orange quality offering at 187s. 6d. per cwt. on the spot; fine orange is 220s. to 290s.; pure button, 245s., and AC cakey 195s. To arrive, December-January and January-February shipment, sellers at 185s. c.i.f. In the "futures" market sales of March have been made at 190s. to 187s. to 188s.; and May at 191s. to 190s. per cwt.

SPIRIT (METHYLATED).—A new price list came into operation on December 20, the rates being as follows:—

In One Delivery	Industrial Methylated Spirit		Pyridinised Industrial Methylated Spirit		Mineralised Methylated Spirit (coloured violet)	
	61o.p.	64o.p.	61o.p.	64o.p.	61o.p.	64o.p.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
500 gallons and upwards	2 5	2 6	2 7	2 8	—	—
100 ,, and under 500	2 6	2 7	2 8	2 9	3 6	3 7
30 ,, ,, 100	2 8	2 9	2 10	2 11	3 8	3 9
10 ,, ,, 30	2 10	2 11	3 0	3 1	3 10	3 11

Methylated resin finish 2d. per gallon extra, and methylated shellac finish, 8d. per gallon extra over the prices quoted for pyridinised industrial methylated spirits.

SPIRIT (RECTIFIED).—The quotation for rectified spirit commencing December 20, and until further notice, is 1s. 11d. per proof gallon, free delivered, usual terms. In the event of cash being provided for the duty at the time of the order being given, it has been agreed that a discount of 2d. per proof gallon shall be given.

VIBURNUM PRUNIFOLIUM BARK is quoted at the higher rate of 1s. 5d. per lb.

WILD CHERRY BARK is firm at 8d. per lb. for natural thin green.

Essential Oils

THE demand is quiet and the principal price changes are in lemon, which is cheaper, bergamot, which is dearer, and peppermint oils, both American and Japanese being higher.

ANISE (STAR).—"Red Ship" on the spot is nominal at 3s. 3d. per lb. Sales of drums are reported at 3s. 1½d. For shipment sales have been made at 2s. 3¼d. c.i.f. and sellers.

BERGAMOT is nominal on the spot at 28s. per lb., and for shipment new crop is dearer in some directions, up to 25s. 9d. c.i.f. being wanted for January-February shipment.

CASSIA on the spot is firm, with sellers at from 7s. 6d. to 7s. 9d. per lb. for 80 to 85 c.a. Sales have been made to come forward at 5s. 9½d. c.i.f., at which business could probably still be done, but quotations range to 6s. c.i.f. and over.

CITRONELLA.—Ceylon is unchanged on the spot, 1s. 5½d. being quoted, and easier for shipment, 1s. 4d. c.i.f. to arrive. Java oil is quiet at 2s. 1d. spot. Sales over next year have been reported at 1s. 11½d. c.i.f., with nothing further offered at the price. Nearer positions are still quoted at cheap rates.

LEMON is cheaper to arrive at 7s. 4d. per lb. c.i.f. for January shipment. February-April is 6s. 10d. c.i.f. On the spot 8s. 3d. to 8s. 6d. is quoted.

LEMONGRASS.—Cochin on the spot is steady at 3s. 6½d. to 3s. 7d. per lb., and for shipment 3s. 5½d. to 3s. 6d. c.i.f.

ORANGE.—Sicilian sweet is quiet at from 8s. 3d. to 8s. 6d. per lb. New crop is dearer at 8s. 7d. c.i.f. West Indian is quoted at 8s. to 8s. 3d.

PALMAROSA is firmer in some directions on the spot, from 8s. 6d. to 9s. per lb. being quoted. For shipment 8s. to 8s. 6d. c.i.f. is quoted.

PATCHOULI.—There are cheaper sellers on the spot, at 44s. per lb., with sales at around this figure.

PENNYROYAL is quiet, Spanish offering in small lots at 5s. 6d. per lb. For quantity this would be shaded.

PEPPERMINT.—A further advance has taken place in American natural tin oil, prompt shipment being quoted up to 23s. per lb. c.i.f.; February-March at 21s. 9d. c.i.f. Spot is held for 23s. to 24s. A fair amount of business has been passing at the recent low prices. After a quiet period in Japanese dementholised, a fair amount of buying took place on Tuesday, and spot values are firm at 8s. 6d. to 8s. 9d. for Kobayashi-Suzuki. A bid of 8s. 3d. for 25 cases was refused. January-March position has attracted most interest, with 8s. c.i.f. paid. Buyers of January-February at 8s. 1½d. c.i.f. For October-December 8s. 4½d. c.i.f. has been paid; 8s. 6d. sellers.

ROSEMARY.—Spot sellers of Spanish, fine quality, quote at 2s. 2d. per lb.

ROSEWOOD (BOIS DE ROSE) is rather easier, spot being quoted at 11s. 3d. per lb., and for shipment 11s. c.i.f.

SPIKE.—Spanish on the spot is quoted at from 3s. 10d. to 4s. per lb.

THYME.—Spanish red, 23 to 30 per cent. phenols, is offered at 3s. 6d. per lb.

WORMSEED (CHENOPODIUM).—American is firm at 14s. per lb. c.i.f., but since our last report a lower figure was touched.

The following arrivals have taken place from the countries indicated during the period December 16 to 20 (inclusive):—Anise (Jp.) 10 cs.; (Ch.) 50 cs., (Ger.) 5 dm.; bergamot (It.), 5 cs.; camphor, (Jp.) 14 dm., (Ch.) 28 dm.; cassia, (Jp.) 10 cs., (Ch.) 5 cs.; citronella, (Jv.) 4 dm., (Br. Ind.) 4 dm.; geranium (Fr.), 5 dm.; lavender (Fr.), 4 cs.; lemon (It.), 29 cs.; lemon and mandarin (It.), 5 cs.; lemongrass (Br. Ind.), 8 dm.; orange, (It.) 11 cs., (Ger.) 6 dm.; orris (Fr.), 1 cs.; peppermint, (U.S.) 15 cs., (Fr.) 9 cs., (Jp.) 39 cs.; sassafras (U.S.), 2 cs.

Pharmaceutical Chemicals, etc.

A STEADY tone governs most products in this market. Business has quietened down on spot, but there is fair inquiry for forward delivery.

ACETANILIDE continues to be quoted from 1s. 7d. per lb. for B.P. crystals and powder.

AMIDOPYRIN.—Spot offers from 11s 9d. to 12s. per lb.; forward position uncertain.

ASPIRIN.—Moderately active demand is reported, with prices for best brands fully maintained at 2s. 4d. to 2s. 5d. per lb., according to quantity.

BARBITONE is unsteady on spot; quoted at about 8s. 8d.

BENZALDEHYDE (0.03) is unchanged at 1s. 11d. per lb. for quantities, in carboys.

BENZOIC ACID (B.P.).—British make is steady and in fair demand at 2s. 3d. to 2s. 4d. per lb., ex works, according to quantity; Continental, p.f.f.c., 3s. 6d. per lb. spot.

BENZONAPHTHOL is unchanged on the week as quoted at 3s 3d. per lb., in five-kilo parcels; quiet.

BORIC ACID.—British makers notify a reduction of about £3 per ton for all grades; commercial, granulated, £34; powdered, £36; extra fine, £38; B.P. crystals, £40; powdered, £44; extra fine, £46, in free bags, carriage paid to any station in Great Britain.

BROMIDES.—Business has been small, but prices are steady: ammonium, 2s. 1d. to 2s. 1½d.; potassium, B.P. crystals and granular, 1s. 8d.; sodium, B.P., 1s. 10d. to 1s. 10½d. per lb. for quantities.

CALCIUM LACTATE is attracting fair inquiry, with dealers' prices at 1s. 3d. per lb., and slightly less for quantities.

CHLORAL HYDRATE is unchanged, with duty-paid crystals offered from 3s. 4d. per lb.; business limited.

CITRIC ACID (B.P.) remains quiet, with cheap offers about: new material, 1s. 3d. per lb.; second-hand parcels, 1s. 2½d. per lb., less 5 per cent. for quantities.

CREOSOTE.—B.P. is steady as quoted by dealers at 1s. 9d. per lb., in demijohns; market quiet.

CREOSOTE CARBONATE is dull, with spot about 6s. to 6s. 3d.

ETHERS, ETC.—Makers have reduced the price of ethers from s.v.m. by 1½d. per lb. all round, and ethers from pure spirit by 1d. per lb. Spirit ammon. aromat. and spirit ether nit. are 2d. per lb. cheaper.

GUAIACOL CARBONATE continues to be offered at about 6s. 9d.

HEXAMINE has been moving well, with prices maintained. Dealers quote from 2s. 5d. to 2s. 6d. per lb.

HYDROQUINONE is more or less idle on spot: quoted at 3s. 11½d. per lb.; forward position uncertain.

METHYL SALICYLATE is quoted at about level terms on the week at about 1s. 6½d. to 1s. 6¾d., but there is an easier feeling in the market. Business has been small.

METHYL SULPHONAL is slack, with spot offers at about 15s. 3d. per lb.

MILK SUGAR.—There is no change in spot prices or in Continental offers, the position being generally steady, with a slight tendency to harden.

PARAFORMALDEHYDE (100 per cent. powder) continues to be quoted for quantities from 1s. 9d. per lb., with the market steady and some inquiry forward.

PARALDEHYDE shows no change at from 1s. 2d. to 1s. 4d. per lb., according to quantity and packing.

PHENACETIN continues to meet with good business, with prices barely maintained, for quantities. Quoted: powder, 3s 10d.; crystals, about 3s. 11d. per lb.

PHENAZONE is slack on spot and there is no interest in forward positions owing to the uncertainty of liability to Key Industry Duty: spot, 5s. 9d. per lb.

PHENOLPHTHALEIN is well held at recent advanced rates, and offers are now firm at 6s. 3d. and upwards per lb., according to quantity.

POTASSIUM PERMANGANATE is not in much demand; dealers' prices are keen for good business: quoted from 6d. per lb. for quantities, in two-cwt. drums.

RESORCIN is quiet, with dealers' prices quoted from 4s. 3d. to 4s. 5d. per lb.

SALICYLIC ACID (B.P.).—Rather easier terms are mentioned this week, with 1s. 4¼d. for quantities and 1s. 4½d. to 1s. 5d. for lesser lots. The market is not so strong.

SALOL shows no change, with 3s. 3d. quoted.

SODIUM BENZOATE (B.P.) is irregular, with some cheap spot offers compared with Continental prices, which range from 1s. 7½d. to 1s. 9d. per lb.

SODIUM DIETHYLBARBITURATE is slack, with spot at about 9s 3d. per lb.

SODIUM SALICYLATE (B.P.) continues about level on the week, but the tone is not so strong, and slightly less might be taken for quantity: crystals, about 1s. 11d.; powder, 1s. 10d.

TANNIC ACID.—B.P. *leviss* remains quiet, with the cheapest offer at 2s. 7½d. for quantities and 2s. 9d. for small lots.

TARTARIC ACID (B.P. crystals) is seldom inquired for; from 11¼d. to 11½d. per lb., less 5 per cent., being quoted, according to quantity, to come forward.

TERPIN HYDRATE remains dull, with dealers offering at about 1s. 8d. per lb.

THYMOL is unchanged at about 11s. 6d. per lb.; one source from the Continent might be obtained at a slightly cheaper rate for quantities.

VANILLIN is irregular and dull: makers quote from 17s. to 18s. 6d. per lb., according to quantity. There are strong indications that this is the bottom of the market. Continental material can hardly be imported at anything appreciably lower than this, and the price of cloves tending to rise, reflects a firmer position for the future.

Among the arrivals of chemicals which have paid Key Industry duty are the following:—Aspirin, £383; butyric acid, £132; cellulose acetate, £110; dichlorethylene, £107; formic acid, £340; nickel hydroxide, £1,225; novocain, £268; sodium bromide, £270; sodium compounds, £257; undescribed chemicals, £753.

Industrial Chemicals, etc.

Wednesday, December 22.

REDUCTIONS in prices for all grades of borax products are notified. The Convention price for caustic potash, after being advanced two weeks ago, has now been reduced. Cream of tartar shows a further slight advance. Cornish arsenic is dearer and steady. Business on spot has been slow, but there has been a good inquiry for next year.

ACETIC ACID continues steady, with a fair amount of limited business: 80 per cent. technical and 80 per cent. pure, £37 per ton, in barrels; glacial pharmaceutical, 99/100 per cent., £65, in glass demijohns; glacial, in barrels, £56 per ton.

ACETONE is quoted in the region of £63 per ton, for B.G.S. in drums, but some prices may be under this figure.

AMMONIA (ANHYDROUS) is quiet on spot, but there is a good deal of inquiry for delivery next year. Dealers' prices for 99.95 per cent., in loaned cylinders, are steady at about 1s. 1d. per lb., carriage paid.

ARSENIC has shown a further upward tendency, quite a good business having been reported at £16 10s. for white Cornish f.o.r. mines, and sellers are now asking up to £16 15s.

BARIUM CHLORIDE is dull on spot, with 98/100 per cent. prime white crystals offering down to £9 2s. 6d. per ton, in casks, ex store. Much cheaper for forward delivery.

BLEACHING POWDER.—British makers' price for home consumers on contract, £8 per ton, delivered, in four-ton lots.

BORAX.—British makers notify general reduction in prices for next year. Commercial, granulated, £19 10s.; crystals, £20; powdered, £21; extra fine, £22; B.P., crystals, £24; powdered, £25; extra fine, £26, in free two-cwt. bags, carriage paid to any station in Great Britain. Dealers' prices continue competitive.

BORAX GLASS has been reduced by about £6 per ton; lump, £60; powdered, £61, in tin-lined cases, packages free, carriage paid in Great Britain. British makers' prices for home consumers only.

COPPER SULPHATE.—There has been a fair export demand and f.o.b. terms for casks for export may be called £24 5s. to £24 12s. 6d., less 5 per cent. discount.

CREAM OF TARTAR is, if anything, rather firmer again this week, with very few offers under 80s. to 81s. per cwt., less 2½ per cent. No quotations from German makers.

EPSOM SALT remains dull, with spot parcels of commercial quality offered from £5 per ton, in single bags, ex store.

FORMALDEHYDE continues to meet with a fair inquiry, with dealers' prices about steady at £40 to £40 5s. per ton, for 40 per cent. by volume.

FORMIC ACID is a shade easier, with the market on the quiet side. 85 per cent., about £46 per ton, in carboys.

LITHOPONE is quiet on spot, but moderately active, with inquiry for next year. Dealers' prices for spot are steady at £20 to £20 10s. per ton for 30 per cent. Continental red seal, in casks. Cheaper for contracts.

OXALIC ACID is steady at 3¾d. per lb. for spot. There is a big inquiry for next year, but most business is held up pending a decision as to the position under Key Industry duty for the future.

POTASH CAUSTIC.—After the recent sharp advance, the Convention now notify that for 15 tons or more their price will be £27 5s. per ton, c.i.f. Spot 88/92 per cent. solid, £29 per ton, in drums, ex store.

SODIUM SULPHIDE.—Continental prices have advanced sharply and are not competitive here. Offers now at about £10 10s. to £11 per ton, f.o.b. Hamburg.

SULPHUR is very firm, with a moderately active demand. Italian crude stands at £6 5s. c.i.f., and terms for American crude delivered Manchester are about £6 7s. 6d. Quotations for refined are firmly held, Sicilian flowers being £12 17s. 6d. and roll £10 5s. c.i.f. to arrive.

COAL TAR PRODUCTS, ETC.—Except that pitch has become irregular there is little change to report this week. Other products are steady at full rates, and all available supplies are quickly taken up. XYLOL.—Cheaper prices; market flat. Commercial, 2s. 3d. to 2s. 6d.; pure, from 3s. 6d. per gallon, ex works. CARBOLIC ACID crystals are firm at about 7d. to 7⅛d. per lb., f.o.b., in drums with over-casks, and supplies are still limited. Several important inquiries have just come in from Japan, and one or two substantial quantities have been booked. If this market becomes at all active crystal carbolic will go up to 7½d. or 8d. per lb. very quickly, as there is still a great shortage. Pale and refined CRESYLIC ACID.—The position is fully maintained. Supplies are very scarce, and very few consumers are covered for next year. British, American specification, 97/99 per cent., 2s. 4½d. per gallon, f.o.b., drums extra; Continental, £24 10s. per 1,000 kilog, f.o.b. Hamburg. CREOSOTE OIL is steady, with all supplies taken up: ex works, 8⅞d.; f.o.b., 9⅛d. per gallon, in bulk quantities. NAPHTHALENE is unsteady and quieter: flakes and balls, £14 15s. per ton, f.o.b.; crude naphthalene, £6 10s., ex works.

Fixed Oils, etc.

GENERAL depression continues in most directions, and some further reductions in values are recorded. Coconut, cotton and palm oils are very dull. Turpentine and linseed oil are steadier. ACID OILS.—Market remains slack, with prices again easier: coconut, palm kernel, 38s.; groundnut, 31s.; soya, 27s. spot. CASTOR is dull but firm and dearer for spot and near positions: pharmaceutical, 54s. 6d.; first pressings, 49s. 6d.; second pressings, 47s. 6d. spot. COCONUT is very dull and easier for all grades: deodorised, spot, 48s. 6d.; Ceylon, 42s. 6d. c.i.f.; Cochin, 45s. c.i.f. COTTON continues dull, with values again easier: deodorised, 43s.; common edible, 39s.; soapmaking, 38s.; crude, 34s. spot. GROUNDNUT is unchanged; market flat: deodorised, spot, 50s. 6d.; crude. Oriental, 43s. c.i.f. PALM KERNEL remains quiet: deodorised, 46s. 9d.; crude, 42s. spot. PALM shows a further reduction, with the market still very dull: Lagos, 35s. 6d.; softs, 34s. 9d.; mediums, 34s. 6d.; hards, 35s.; bleached, about 39s. spot. RAPE is quiet and unchanged: refined, 50s.; crude, 48s. spot. SOYA is easier on a slack market: deodorised, 41s. 6d.: crude, 37s. spot. LINSEED (raw, naked).—Prices show little change on the week; market steady but quiet. On spot, 30s. 9d.; December, 29s 6d.; January-April, 30s.; May-August, 29s. 10½d. Boiled oil, spot, 32s. 3d. Hull, on spot, 30s. 6d.; January-April, 30s. 6d.; May-August, 30s. 3d. TURPENTINE (American) is very steady, with prices about level on the week. Total London stocks, American 31,425 barrels, and French 3,374 barrels. On spot, 61s.; January-April, 62s.; May-June, 62s. WOOD.—Hankow in barrels on spot is dull; quoted at about 72s.

Exchange Rates on London

The following is a list of Continental and other exchange rates against the pound sterling on London prevailing at 4 p.m. on Tuesday:—

Place	Method of Quoting	Par of Exchange	December 15	December 21
Amsterdam ..	Fl. to £	12.107	12.13—12.13½	12.13—12.13½
Berlin ..	M. to £	20.43	20.38—20.39	20.37½—20.38
Brussels ..	Belga to £	35	34.87½—34.88	34.88—34.89
Calcutta ..	Per rup.	24d.	17 3/32d.—17 5/32d.	17 3/32d.—17 5/32d.
Constantinople	Pst. to £	110	960—970	955—970
Copenhagen ..	Kr. to £	18.159	18.21—18.22	18.20—18.22
Greece ..	Dr. to £	25.22½	385—389	387—390
Hong Kong ..	T.t. $	—	23 1/16d.—23 1/16d.	23 1/16d.—23 1/16d.
Italy	Lire to £	25.22½	108½—108¾	108½—108¾
Kobe	Yen	24.58d.	24 5/32d.—24 3/16d.	24 5/32d.—24 5/32d.
Lisbon ..	Escu	53½d.	2 23/32d.—2 23/32d.	2 23/32d.—2 23/32d.
Madrid ..	Pes. to £	25.22½	31.79—31.82	31.76—31.79
Montreal ..	$ to £	4.86⅝	4.85 7/32—4.85 7/32	4.85 3/32—4.85 5/32
New York ..	$ to £	4.86⅝	4.85 1/32—4.85 3/32	4.85 1/32—4.85 3/32
Oslo	Kr. to £	18.159	19.20—19.23	19.26—19.29
Paris	Fr. to £	25.22½	121⅜—122	120¾—121⅛
Singapore ..	Per dol.	—	27 7/16d.—27 1/2d.	27 3/8d.—27 7/16d.
Sofia	Lev. to £	25.22½	667—680	667—680
Stockholm ..	Kr. to £	18.159	18.15—18.16	18.14 3/4—18.15
Switzerland ..	Fr. to £	25.22½	25.09—25.10	25.08 1/2—25.09
Vienna	Sh. to £	24.02	34.40—34.45	34.35—34.38
Warsaw ..	Zloty to £	25.22½	42—45	42—45

Correspondence

Letters for this section should be written on one side of the paper only. Correspondents may adopt an assumed name for purposes of publication, but must in all cases furnish their real name and address to the Editor.

Industrial Methylated Spirits

SIR,—I should like to draw attention to an error which I fell into when writing the paper on industrial methylated spirits which was printed in the *C. & D.*, October 2, p. 547. Finish, polishes, varnishes containing over 3 oz. of shellac or resins in one gallon were formerly permitted to be made with industrial methylated spirits by authorised persons. Mixture or finish with gum resin includes polishes and varnishes, and unless the quantity of shellac or resins exceeds 16 oz. in one gallon, it is now only permitted to be made with pyridinised industrial spirits or mineralised methylated spirits by authorised persons. No permission is required to manufacture polishes from finish purchased from methylators or wholesalers, who supply shellac or resin finish now made with pyridinised methylated spirits. Persons desiring to make polishes with industrial methylated spirits must have more than 16 oz. of shellac or resins in one gallon. The least quantity will be 18 oz. to one gallon to equal over 16 oz. in one gallon. The formula should be submitted to the Board of Customs and Excise to obtain the authorisation. All the formulas for polishes in "Pharmaceutical Formulas" contain over 16 oz. in one gallon. The notice to chemists and druggists and persons authorised to use methylated spirits reads as follows:—

In any mixture of methylated spirits with gum resin the quantity of gum resin in actual solution should not be less than 3 oz. per gallon, and no mixture or "Finish" made with industrial methylated spirits may be sold unless the quantity of gum resin in actual solution exceeds 16 oz. per gallon; if the quantity of gum resin in actual solution is 15 oz. or less, and the "Finish" is intended for sale, it must, if not made with mineralised methylated spirits, be made with industrial methylated spirits (pyridinised). No alteration may be made in such mixture or "Finish" except by the addition of gum resin or colouring matter, under a penalty of £200 and forfeiture of the spirits and article with respect to which the offence is committed.

Faithfully yours,
WM. FORSTER.

Seaham Harbour.

Doctors' Dispensing

SIR,—Surely your editorial article entitled "Dispensing Doctors" (*C. & D.*, December 18, p. 906) is very moderate in tone. My first insight into the vagaries of dispensing, as it is too often carried out in doctors' dispensaries, dates back to my apprenticeship days, when we had a fair number of doctors on the books, and I had to visit them from time to time. Although it is quite possible that there are some surgeries where the dispensing department is arranged and carried on as well as one expects it to be in a proper pharmacy, I have not come across one where the methods are anything like on a par with those in vogue in the average chemist's shop. Going back to those old days, the doctor with the biggest practice in the locality paid his visits in a neat brougham (before the days of the motor-car), and on his return wrote on any odd scrap of paper something like: "Mrs. Smith, F.A.C. arsen., Mrs. Jones, sod. gent.," and so on. When the coachman had stabled the horse and locked up the brougham he used to come in for these slips, and, retiring to the dispensary, in a short time dispatched the boy in buttons with the various mixtures The thing I could never discover was how he arrived at the right doses or how the doctor knew what the previous medicine was. Another man whom I knew fairly well, and often watched making up his mixtures, had neither measures nor balance in the place. His method was extremely simple; the salts were shaken out of the stock bottle into the hand and thence into the medicine bottle; the liquids were poured or dropped out of their containers, according to their potency, and the bottle filled under the tap, the disturbance caused by the flow of water being deemed sufficient agitation. On one occasion I asked him if the patients did not sometimes complain that their mixtures varied considerably. He said that they might do so, but he always explained that he had changed the medicine. Yet another I remember actually kept a record of what he gave his patients—at least, he wrote the initials of the drugs prescribed on the label and directed the patient to bring the bottle back at the next visit. This was a decided advance on the others, but if there were two drugs with the same initial letters he had, so to speak, to toss up for it. But the gem of the collection was the man who left his prescriptions at the pharmacy to be made up and we delivered the medicine. It was not unknown for him to come in during the morning and dictate several prescriptions with the instruction that they were not to be sent till the afternoon, as he had not called on those patients yet. As the shop was most convenient for the first call he came there first. In latter days I have been established in a locality where the dispensing is practically confined to Insurance work, so I have not had similar opportunities of observing the conditions; but I have no doubt that many of your readers can give instances quite equal to or even worse than those I have quoted.—Yours, etc.,

REMINISCENT (21/12).

Subscribers' Symposium

For interchange of opinion among "C. & D." readers and brief notes on business and practical topics

Appreciations

Each year I find your magazine more useful.—*J. S. E.* (16/12).

May I take this opportunity of congratulating you on the *Diary*? It is, as always, unique.—*J. R. W.* (16/12).

I find it impossible to do without your valuable book. The annual is once again a masterpiece.—*H.S.A.* (10/12).

I always look on my subscription to the *C. & D.* as one of the finest investments of the year.—*G. D. J.* (10/12).

After twenty-five years I still repeat the *C. & D.* is inestimable and indispensable to every chemist.—*A. W. T.* (14/12).

Should chemists learn first aid? It certainly may be of advantage to know something about human anatomy, and how to control hæmorrhage, what to do in case of a fracture, or what antidotes to use for poisons. But what about studying "First Aid in the Pharmacy?" What would you do if you had a "fracture" with the various "Pharmacy Acts," the "D.D.A.," the "Labelling of Poisons Order," or the numerous other regulations connected with the profession? Take a tip from me—don't forget to renew your annual subscription to the *C. & D.* It is by far the best way of learning "First Aid in the Pharmacy"—while studying at the same time "Safety First."—*E. D. G.* (6/12).

Handing Out Medicine

Is the handing over the counter of a bottle of Insurance medicine a sale? It is recognised that handing over a medicine containing a scheduled poison and taking the money for it constitutes a sale, and if an unqualified assistant did so in the absence of the chemist he would be personally liable; but supposing an Insurance script to have been dispensed by a qualified man and then, in his temporary absence, to have been handed out by an unqualified one, would the latter be liable, or would he be in the same position as a messenger who delivered the bottle at a customer's house? In neither of these cases does the assistant or the messenger take payment for the goods. The retail chemist, especially the man in a small way, is virtually tied to his counter as it is; and if it should be laid down that to comply with the law he is obliged to perform all these operations personally, his future is equivalent to penal servitude for life.—*Chaotic* (13/12).

Dispensing Difficulties and Notes

An Explosive Mixture

SIR,—I was very much interested in your remarks on the incompatibility of chloral hydrate and bicarbonates in the reply to "W. J. W." in your issue of November 27 (p 812). I made up the prescription myself and tied over the neck a piece of thin rubber, which was allowed to hang loosely. After about four hours the rubber was extended to the size of a cherry, and on being punctured with a fine glass tube leading into a little lime water, was found to contain carbon dioxide. This is in conformity with the fact that alkalis in contact with chloral hydrate tend to form chloroform and a formate. Presumably before the formate is formed, formic acid is obtained, which in the presence of bicarbonates liberates carbon dioxide.—Yours faithfully,

PH.C. (7/12).

A Bismuth Trouble

SIR,—On three occasions recently the following mixture has been dispensed as a clear solution, whereas previously there was a fair precipitate. Is this due to more or less carbon dioxide in the liq. mag. bicarb.?

Liq. bismuthi	...	...	...	ʒvj.
Liq. magnes. bicarb.			...	ʒij.
Tr. card. co.	...	...	...	ʒjss.
Inf. caryoph.	...	...	ad	ʒvj.

Yours faithfully,

A. T. G. (22/11).

[We have obtained a precipitate which occupies about a fourth of the bottle, and that is such as we should expect. Precipitation does not appear to be due to the carbon dioxide content of the fluid magnesia. The precipitate is bismuth salt and soluble in solution of ammonium citrate, so we regard the different results obtained as dependent on a varying content of ammonium citrate in the liquor bismuthi.]

Balsam of Peru in Oil

SIR,—Will you kindly give us your opinion as to the best method of dispensing the prescription given below?

Ung. hyd. nit. dil.	...	...	...	ʒij.
Balsam. Peru.	...	...	...	ʒvj.
Ol. olivæ	...	...	...	ʒx.

Faithfully yours,

H. H. R. (23/10).

[A small part only of Peru balsam being soluble in olive oil, the insoluble portion, in compounding this application from the prescription as written, is deposited on the pestle and side of the mortar in the process of mixing The balsam is soluble in castor oil, consequently the substitution—quite legitimate in the circumstances—of castor oil for part of the olive oil is of service. Rub down the dilute nitrate of mercury ointment with the balsam of Peru, add five drachms of castor oil, and incorporate thoroughly, afterwards introducing five drachms of olive oil. This produces a perfect preparation, smooth and homogeneous.]

Honey and Permanganate in a Gargle

SIR,—Can the following prescription be dispensed as written?

Acid. tannic.	...	...	...	gr. xx.
Mellis ...	...	...	...	ʒj.
Pot. permang.	...	...	...	gr. iij.
Aq.	...	...	ad	ʒviij.

Yours truly,

PRO PATRIA (20/11).

[The prescription can be compounded as written. The resulting liquid is dark brown, and there is some precipitate after the gargle has been allowed to stand at rest for a few hours, so that it is well to send it out with a "Shake" label affixed to the container. The potassium permanganate, being completely deoxidised by the honey, would not afford the same effect medicinally as when presented with its full oxygen content. Dissolve the honey and tannic acid in six fluid ounces of water and add the potassium permanganate dissolved in the remainder of the water.]

A Bismuth Bromide Precipitate

SIR,—Would you explain why the following mixture precipitates, giving a light reddish solution, which, when shaken, turns purple?

Bisediæ	...	...	...	ʒiij.
Tr. strophanth.	...	...	...	ʒss.
Tr. nucis vom.	...	...	...	ʒj.
Pot. bromid.	...	...	...	ʒij.
Spt. ammon. arom.		...	...	ʒj.
Spt. æth. nit.	...	...	...	ʒj.
Aq. menth. pip.	...	...	ad	ʒviij.

Yours faithfully,

CONGO (10/11).

[The precipitate is bismuth bromide and is unavoidable. The colour of the mixture as we obtain it is a feeble pink. Its appearance when at rest is altered when shaken up, owing to effect of the suspended particles of the precipitate on light. The bisedia should be added to the other constituents after they have been mixed together.]

An Arsenic and Liquorice Mixture

SIR,—I should be obliged if you would tell me your opinion on the following points in connection with the mixture given below:—(1) Is there any likelihood of the liberation of free iodine? (2) Is there any method of dispensing it without precipitation of glycyrrhizin? (3) What is the best procedure to turn out a mixture free from dangerous incompatibility? The prescription is:—

Syr. ferri iod.	...	...	...	ʒvj.
Pot. iod.	...	...	...	gr. xij.
Liq. arsen. hydroch.		...	...	♏xxiv.
Ext. glycyrrh. liq.		...	...	ʒiv.
Aq. chlorof.	...	...	ad	ʒvj.

Yours truly,

H. E. P. (9/10).

[Liberation of free iodine does not occur in this mixture when compounded as written. It does not colour starch paste after standing several days. To lessen the precipitation of glycyrrhizin employ the alkaline solution of arsenious acid instead of the acid one which is prescribed, and, having diluted the liquid extract of liquorice with an equal volume of chloroform water, neutralise it with liquid ammonia before adding to the other constituents. Mix the syrup of ferrous iodide, potassium iodide and arsenical solution with chloroform water to produce about five fluid ounces, and then introduce gradually the diluted neutralised liquid extract of liquorice. By this procedure the mixture contains a negligible precipitate of glycyrrhizin and is very much improved in taste.]

A Veterinary Preparation

SIR,—We shall be grateful for your opinion of how this prescription (of a preparation for cows) should be dispensed:—

Iodine, sublimed	...	...	...	ʒj
Potassium iodide	...	...	...	ʒjss.
Carbolic acid, liquid		...	...	ʒxvi.

Formerly, we placed the iodine and potassium iodide in a measure and added sufficient distilled water to moisten and dissolve, then drained off the solution and made up with liquid carbolic acid, discarding the undissolved potassium iodide. We obtained quite a clear mixture this way. Recently we placed the iodine and potassium iodide with a little distilled water and allowed to dissolve. On adding the liquid carbolic acid to this mixture a thick deposit of a syrupy nature appeared. On straining through muslin there remained a precipitate and some undissolved potassium iodide.

Yours faithfully,

H. J. B. (25/11).

[There is more potassium iodide ordered than will dissolve in the liquefied carbolic acid. Some additional liquid is required, and it seems to us that glycerin is quite suitable on two grounds. Potassium iodide is very soluble in it, and it lessens the tendency of liquefied carbolic acid to crystallise when the temperature falls below 50° F. About one and a half fluid ounce to two fluid ounces appear to be required. This addition will be preferable to omitting the excess of potassium iodide. Stand the bottle containing the materials in a warm place to promote solution.]

Miscellaneous Inquiries

When samples are sent particulars should be supplied to us as to their origin, what they are, what they are used for and how. We do not undertake to analyse and report upon proprietary articles nor to publish supposed formulas for them.

Pertinax (23/8).—SOLUTIONS OF GUM ARABIC or mucilage of acacia are usually clarified by subsidence. Filtration through a flannel bag surfaced by pulped filter paper in the usual way is possible, but this will become exceedingly slow by the time a reasonably clear product is obtained. To accelerate filtration it would be necessary to do this in a warm room or hot-water-jacketed chamber, the material itself being warmed and evaporation prevented by using a moisture-laden atmosphere. A preservative such as benzoic acid or chloroform would be necessary to prevent the development of undue acidity. If it is essential to clarify the solution on a manufacturing scale for the production of brilliant preparations, the easiest way is to use selected and washed gum. Alternatively the solution may be filtered thin and concentrated in a vacuum pan. The stream-line filter is the only direct and rapid way of filtering viscous solutions. This is a system of edge filtration which gives brilliant products from the most unpromising materials (e.g., carbonised lubricating oil). Stream-line filters are obtainable in small sizes and work either by pressure or suction. Another feature is the ease with which clogged filtering surfaces are cleaned and the rate of filtration again speeded up.

V. R. M. (*Cadiz*) (4/9).—SALT MIXTURE OF MCCOLLUM AND DAVIS.—The following is a typical salt mixture used in synthetic diets in testing vitamin A content of cod-liver oil :—

	Parts
Sodium chloride (NaCl)	5.19
Magnesium sulphate ($MgSO_4$, $7H_2O$)	16.40
Sodium acid phosphate (NaH_2PO_4, $2H_2O$) ..	10.41
Potassium phosphate (K_2HPO_4)	28.62
Calcium phosphate (CaH_4PO_4, H_2O)	16.20
Calcium lactate (Ca $(C_3H_5O_3)_2$, $5H_2O$)	39.00
Ferric citrate	3.54
Iodine	Trace

N., Ltd. (27/9).—TINFOIL.—The use of tinfoil as a first covering or closure for malt extract in bottles or jars is not a deterrent or protective against the contents becoming mouldy. Treating this with antiseptic will hinder local growth, but the only real safeguard is the concentration of sugars in the malt extract. Moisture and air in the space between the cap and the contents of the jar are the controlling factors of predilection to mould growth. Alternate evaporation and condensation of water from a thin extract will dilute the surface of the malt extract and permit germination of spores and mould growths. These require access of air for ordinary blue mould, but may be anærobic for yeasts. Since tinfoil contains pinholes, it cannot be gastight, hence waxed pulp discs are preferable for making airtight seals. In addition, the air space should be reduced to a minimum as surface for evaporation, dilution, and contamination is thereby reduced. The greatest danger is the "sweating" which occurs on metal surfaces when a cool spell of weather follows a hot summer season. The real safeguard is careful control of final concentration (specific gravity) of the malt extract by evaporation, care of course being taken during mashing that the proportions of reducing sugars are kept below an amount which would lead to crystallisation. The manufacture of a malt extract that does not ferment or crystallise, and has a good flavour and high diastatic activity, must be a compromise calling for knowledge and skill in control during manufacture. Such safeguards are replacing the use of preservatives in food preparations.

H. L. (14/10).—CHLORINATED REFRIGERANTS.—The compound which you name "dialline" (CH_2Cl_2) is, we believe, intended to be dichlorethylene ($C_2H_2Cl_2$, or $CHCl=CHCl$, b.p. 52° C.). Trialline (C_2HCl_3) corresponds in formula to trichlorethylene ($CHCl=CCl_2$, b.p. 87° C.). Both these preparations are commercial solvents used in fat extraction, dry cleaning, or as solvents. They are very heavy, and sink in water. As refrigerants in ice machines, their use is much safer than either ammonia or carbon dioxide. Breathing over an extended period causes sleepiness similar to chloroform. However, the refrigerating machine would cease working efficiently when the leak was large enough to produce any noticeable effect on odour. In any case reasonable ventilation would prevent such deleterious effects on workmen, as the products are relatively harmless except in continual inhalation.

Cannon (29/11).—AGAR AGAR EMULSION OF PETROLEUM.—The reference given previously should have been *C. & D.*, June 13, 1925, p. 872.

Student (2/12).—COLLOIDAL ARSENIOUS OXIDE.—Dr. W. H. Martindale states that a colloidal solution of arsenic can be made by dialysing the product obtained by reducing a 1 per cent. solution of arsenious acid with hypophosphorous acid in the presence of 1.4 per cent. of gelatin. The protective action of the gelatin is, however, not sufficient to make the colloidal preparation sufficiently stable for use in medicine. "Practical Colloid Chemistry," by W. Ostwald (7s. 6d.) is admirably adapted to the study and preparation of colloids by students. The *C. & D. Diary* for 1927 includes a list of other practical books on this subject on p. 287.

H. G. P. (9/12).—JOINT COUNCIL OF QUALIFIED OPTICIANS.—This body was registered under the Companies Acts in 1923 (*C. & D.*, 1, 1923, p. 505), the word "limited" being omitted by licence of the Board of Trade. The Council is not an examining body, but acts as an intermediary between the approved societies and ophthalmic opticians in regard to optical benefit under the National Health Insurance scheme. Admission to the Register of the J.C.Q.O. is confined to those who have passed the examinations of the Spectacle Makers' Company, or the British Optical Association. Further details may be obtained from the Registrar, Clifford's Inn Hall, London, E.C.4.

Lavator (10/12).—BATH CRYSTALS.—The formula and directions for preparing bath crystals given in the *C. & D.* Price List Formulary are the result of a special investigation of the subject. We regret that we cannot undertake to supply alternative colours to those given.

R. S. B. (10/12).—We have no information about "a Reading chemist who is supposed to keep bees and use them in some way as a remedy for cataract."

T. & Co. (11/12).—HYDROBROMIC ACID.—According to Thorpe's "Dictionary of Chemistry," hydrobromic-acid gas is very soluble in water, and the solution when saturated forms an acid of sp. gr. 1.78. This contains 82 per cent. of HBr, corresponding to formula $HBr.H_2O$. "Acid. hydrobromic conc. fuming, 82 per cent.," is quoted in price lists of fine chemicals.

Retrospect of Fifty Years Ago

Reprinted from
"The Chemist and Druggist," December 15, 1876

End of the 18th Volume

In concluding our volume for 1876, we have only to repeat our thanks to the trade for the very abundant support which they accord to our journal, enabling us to justify the title of which we are most proud, namely, that of Organ of all Anglo-Saxon Chemists and Druggists. This volume contains over 500 pages of literary matter; ten years ago our volume contained only 200 pages. We spend nearly ten times as much now on the production of our journal as we did then. Our ability to do this is due to the generous friendship we have experienced both from the wholesale and retail trade. It is impossible to prove absolutely figures as to relative circulation, but we are ourselves confident that we could bring sufficient evidence to satisfy anyone that THE CHEMIST AND DRUGGIST is read more extensively by pharmacists throughout the world than any other one journal. We are not unaware of our imperfections, which we will aim to correct, and with the continued favour of our readers we shall endeavour to push on yet farther in the road of improvement.

THE CHEMIST AND DRUGGIST

COMMERCIAL COMPENDIUM

deals with the trade side of pharmacy

[Commenced *C. & D.*, July 5, 1924]

Hydrogen Peroxide of commerce is a solution of real hydrogen peroxide, usually of 3 per cent. or "10 volume" strength. It is made by suspending barium peroxide in water and decomposing this at a temperature below 15° C. by the gradual addition with continuous stirring of hydrochloric, sulphuric, or phosphoric acid. Hydrogen peroxide for use by bleachers and in laundries, being prepared with hydrochloric acid, does not keep well owing to the presence of impurities, particularly iron salts and chlorinated compounds. Hydrogen peroxide for domestic or surgical use is made from specially purified ingredients, phosphoric acid being used for decomposing the barium peroxide. This has the advantage of precipitating iron as well as barium. It is usual to leave a slight excess of phosphoric acid in the finished product to act as a preservative. Specially purified hydrogen peroxide is prepared by pharmaceutical manufacturing chemists, great care being taken to eliminate catalytic metals, not only from the hydrogen peroxide solution, but also from the glass or stoneware containers. The latter is the secret of the stability which permits properly purified "peroxide" to pass unchanged through the tropics. Acetanilide was formerly much used as a preservative for hydrogen peroxide. Liq. hydrogenii peroxidi, B.P., is 10 volume strength. Commercial peroxide of hydrogen is also usually 10 volume, but a considerable amount of 20 volume hydrogen peroxide is used in pharmacy, as it keeps well and is economical as regards carriage. Anhydrous hydrogen peroxide is a chemical euriosity and takes the form of a syrupy liquid, solidifying at −2° C., and is equivalent to 500 volume strength. Preparations of hydrogen peroxide up to 30 per cent. strength (100 vol.) are obtainable as chemical reagents. Care must be exercised in storing hydrogen peroxide of all strengths, non-exposure to light being imperative to prevent photo-chemical decomposition. In addition to keeping in a cool place, the stoppers of carboys or stone jars should be removed and a loose cap fitted, otherwise generation of oxygen gas by gradual decomposition may lead to a dangerous explosion. Since this procedure cannot be adopted with small bottles of ready-packed hydrogen peroxide, it is necessary to obtain these from a reliable manufacturer or wholesaler. The uses of hydrogen peroxide depend upon its powerful oxidising properties, and that only water is left after the release of the labile oxygen atom. Its chief technical use is in bleaching valuable materials, such as ivory, silk, and ostrich feathers. For such purpose 10 vol. peroxide of hydrogen is diluted with twice its volume of water and made slightly alkaline with ammonia or sodium silicate. In medicine its chief use is a disinfectant for suppurating sores, but it is essential to cleanse the sore and remove dead tissue to obtain full effect. Otherwise organic acids liberate nascent oxygen, so that the antiseptic may not come into contact with the area to be disinfected. Hydrogen peroxide for domestic use is usually 10 volume strength, being used as a mouth wash or gargle well diluted (1 in 20), or as a hair bleach to produce "golden" hair. For dental purposes or as a teeth cleanser an equal volume or twice its volume of water is added. Hydrogen peroxide has been used for milk sterilisation, but it impairs its nutritive value, and its use for this purpose is prohibited in some countries. Solid hydrogen peroxide is a compound of hydrogen peroxide with urea. (*See* Hyperol.)

Hydrogen, Preparation and Uses.—Gaseous hydrogen is now a raw material in several industries based upon catalytic processes, examples being the synthesis of ammonia, the hydrogenation of fats, and the synthetic production of alcohols. Hydrogen for industrial purposes is made by electrolysis or obtained by purification of water gas, which is a mixture of hydrogen and carbon monoxide produced by passing steam through incandescent coke. The electrolyte for hydrogen production is usually dilute sulphuric acid between lead electrodes, but hydrogen is a valuable by-product in the manufacture of caustic alkali by electrolysis of common salt or potassium chloride. The design of electrolytic cells aims at reducing resistance (and working expenses through wasted energy) and ensuring separation (and purity) of the evolved gases. These are problems that have given rise to a new type of chemical engineer. Water-gas may be converted into hydrogen and carbon dioxide by passing it over iron oxide, the reduced iron being regenerated with steam. The more modern way is to "purify" water-gas by mixing it with steam and passing it over a catalyst. The success of this process depends upon temperature (and reaction) control in balanced reactions or water gas equilibria (e.g., $H_2O+CO+H_2 \rightleftarrows CO_2+2H_2$). The carbon dioxide is absorbed by passing the gases through water under pressure. The economic success of all catalytic processes is dependent upon continuous production by interactions at extended (activating) surfaces. The active surfaces must not be poisoned by impurities in the reactants, and delicate control is necessary of heat absorption or production. The ever-extending use of catalytic processes shows that these basic problems have been solved. The extension of hydrogenation to the liquefaction of coal is limited solely by cost of working plant for hydrogen production and catalytic hydrogenation. Hydrogen compressed into cylinders is used for autogenous welding of lead (sulphuric acid chambers), but oxyacetylene usually replaces the oxyhydrogen flame for general welding of metals. The gas bags of balloons and airships are filled usually with hydrogen. Liquid hydrogen can be made by the Linde process, but its industrial use has not yet been developed like that of oxygen, either for hydrogen purification or other purposes.

Hydroquinone, or quinol (m.p. 169° C.) is *para*-dihydroxybenzene ($HO.C_6H_4.OH$). The chief use of this phenolic substance is as an ingredient of photographic developers. Hydroquinone is made by oxidising aniline with chromic acid in the form of (diluted and well-cooled) sulphuric acid and sodium bichromate solution. Hydroquinone possesses strong antiseptic properties similar to resorcin, but the latter is preferred in the treatment of skin diseases. In alkaline solution hydroquinone readily oxidises to quinone, which reducing action is the basis of its use as a photographic developer. Packet developers and universal developing solutions usually consist of a mixture of metol and hydroquinone, the latter adding density to the more marked developing-out properties of the former.

Hyoscyamus Niger.—The henbane used in this country is a biennial plant found growing throughout Europe from Portugal and Greece to the Caucasus, Asia Minor, Persia, Siberia and Northern India. In Britain it occurs wild near the sea, where shells occur in the sandy soil, on chalk hills, usually near rabbit warrens, where a certain amount of manure is available, either of animal or vegetable nature, but it occurs somewhat sparingly, and is therefore now cultivated for medicinal purposes. The cultivation is difficult owing to the habits of the plant. The seeds are ripened gradually, and the first formed, or largest, are therefore dispersed earliest. If the seedlings are too crowded they are liable to be attacked by a fungus during the second year. In September of the first year the root leaves, which are often 8 in. to 16 in. long, turn yellow with the first frost and rot, leaving a terminal bud at the top of the root, which is apt to be eaten off by caterpillars or slugs, and the plant thus destroyed. These are therefore dried in September and sold as first year's biennial leaves. They always have long stalks. If the winter is very wet and the plants get inundated, they rot; if the spring is cold, growth is delayed; or if drought

The C.&D. Commercial Compendium

occurs the growth is starved. If the weather is wet in May and June of the second year the lower leaves of the plant up to a foot or more become splashed with soil, which adheres, owing to the clammy hairs, so that only a few upper leaves and bracts can be used for drying. The herb, when required in the fresh state, should be cut the first week in June, because in the second week the leaf-mining insect attacks the leaves, leaving only patches of white epidermis. The first year's leaves of the biennial plant are stated to be less active than the second year's, and are sold at a lower price. There is a variety of this species known as *Hyoscyamus annuus*, which often springs up where the biennial is sown. It is apparently produced by the weaker and later developed seeds formed in the fruit at the ends of the shoots; it is considered to be less active than the typical species. It differs in being of dwarfed growth and having rather paler flowers, but the bracts are sessile, as in the typical plant. A good deal of this is sometimes imported from the Continent, and is distinguished by its small leafy stems, carrying flowers. The British drug of commerce consists of dense flowering shoots only, and of larger size. There is also imported from the South of Europe a quantity of the flowering plant of *Hyoscyamus albus*, Linn., which is easily distinguished by the bracts, as well as the leaves being all stalked, and by the pale-yellow colour of the flower. The chief active principles of henbane are hyoscyamine, a small proportion of atropine, and hyoscine, but henbane contains less total alkaloid than either belladonna or stramonium—namely, from 0.045 to 0.14 per cent. An Egyptian species of hyoscyamus (*H. Muticus*) is largely imported from that country and India, chiefly for the manufacture of hyoscyamine. It consists largely of stout yellowish stalk with cylindrical fruits. The seeds of henbane are also a marketable article, being sold for relieving toothache.

Hyperol is a compound of hydrogen peroxide and urea with the formula $CO(NH_2) . H_2O_2$, containing 35 per cent. of hydrogen peroxide. It is used (1 in 10) as a convenient method of extemporaneous preparation of 10 vol. solution of hydrogen peroxide; or in chemical analysis as a form of solid hydrogen peroxide.

Hypodermic Syringes.—*See* Syringes.

Hypol is an abbreviation current in photography for hyposulphite of soda, which is chemically sodium thiosulphate (q.v.).

Hypophosphites find their principal use in pharmaceutical practice as a traditional addendum to cod-liver oil emulsions. The phosphates, hypophosphites, and glycerophosphates do not appear to have any inherent advantage over one another as a source of inorganic blood phosphate. However, the strong reducing properties of hypophosphites are an advantage in retarding discoloration of cod-liver oil emulsions. Calcium hypophosphite and sodium hypophosphite are official in the British Pharmacopœia, these being added to emuls. ol. morrhuæ, which is not a B.P. preparation. Potassium hypophosphite, manganese hypophosphite, magnesium hypophosphite, ferric hypophosphite (powder and strong solution), ammonium hypophosphite, quinine hypophosphite, and acid hypophosphorous are in regular, if somewhat small, demand as ingredients of preparations of the hypophosphites, such as glycerinum hypophosphitum co., B.P.C., but syrups of the hypophosphites are much more popular.

Hyposulphites.—*See* Sodium Thiosulphate.

Hyssop.—The herb used by herbalists under this name is without doubt the *Hyssopus officinalis* of Linn. (N.O. *Labiatæ*), a native of Southern Europe and Southern Russia in Asia. It is commonly cultivated in cottage gardens in this country as an agreeable remedy in pulmonary complaints, but is generally given mixed with other herbs. It is a small perennial plant with narrow leaves and a woody stem about two feet high, the leaves being about half inch or more long and one-eighth inch broad. The flowers are blue or rarely pink or white, and form one-sided clusters along the upper part of the stem. The leaves are smooth, except on the hairy margins. The taste is bitter and the odour aromatic and camphoraceous. But the hyssop of ancient history is a plant that has given rise to possibly more discussion than any other as to its botanical identity. The hyssop of the Jews was used to sprinkle the blood of the Paschal Lamb on the doorposts of the Israelites in Egypt (Exodus xii, 22), and in the purification of lepers and leprous houses. The Hebrew word Esôb is uniformly translated in the Septuagint or Greek version of the Old Testament by the Greek word *Hyssopus*, but the hyssopus of Dioscorides has never been identified with certainty. The words "purge me with hyssop" can never be intended in the medicinal sense of the word, but only in the sense of cleansing, since *Hyssopus officinalis* has no claim to any purgative property, and the plant which is known as hedge hyssop, *Gratiola officinalis*, Linn. (N.O. *Scrophulariaceæ*), although it possesses purgative and emetic properties, is a weak-stemmed marsh plant indigenous to Southern Russia, and would be of no use for sprinkling purposes. The "hyssop of the wall" is supposed by some botanists to be the common caper plant (*Capparis spinosa*, Linn.), but its straggling branches also unfit it to be used for sprinkling. Another suggestion as to the hyssop of the wall has been that it was the minute moss (*Pottia truncatula*, Lind.). The most satisfactory solution is that given by Kühn, that in Egypt the *Origænum Egyptiacum* was used, the *O. Syriacum* in Palestine, and that the hyssop of Dioscorides was *Origanum Smyrnæum*. That it was some species of origanum the writer believes to be a fact, since a specimen of Esôb gathered on Mount Sinai and pointed out to a well-known clergyman by an Arab guide as the true hyssop was unquestionably a species of *Origanum*, though from the absence of flowers and carvacrol the species could not be identified with certainty. Most of the species of this genus have woody stems and a bushy habit that would fit them for sprinkling liquids.

I

Iceland Moss.—*Cetraria Islandica*, Linn., Ach., Class *Lichenes*, is a foliaceous lichen, widely distributed in the Northern Hemisphere, growing in mossy and grassy places on the lower mountains, but not often below 3,000 feet. It is collected chiefly in Sweden and Central Europe for commercial purpose. It is a small plant about two inches high, branched in a more or less forked manner. The branches are of a brownish tint above, but greyish-white below, with numerous and small white scattered depressions or pits. The frond is cartilaginous when moist, but brittle when dry. It has a crisp, wavy habit, with a short linear papilla (pysnidia) containing spores capable of reproducing the plant. The normal fructification consists of more or less circular reddish-brown discs about 5 mm. in diameter but are rarely found on the plant, occurring apparently only on high and damp positions. Iceland moss is remarkable for containing lichenin, $C_6H_{10}O_5$, accompanied by isolichenin, which resembles starch in some particulars. It is soluble in cold water, but the solution gelatinises on cooling from hot water. Lichenin and isolichenin are converted into dextrose by hydrolysis with dilute mineral acids, and as much as 72 per cent. of fermentolic sugar can thus be obtained from cetraria. Iceland moss has a bitter taste, due to cetraric acid, $C_{20}H_{18}O_{10}$, a crystalline bitter substance but the bitterness can be removed by soaking the lichen in dilute solution of carbonate of sodium. It is used in domestic circles as a demulcent in catarrh, and is said to have a tonic effect. The decoction is made of the strength of an ounce to a pint, and is taken in wineglassful doses. In early botanical works several groups of small flowerless plants were described as mosses—e.g., Irish moss and club moss, and Ceylon moss—and in each case the old incorrect name is still used commercially.

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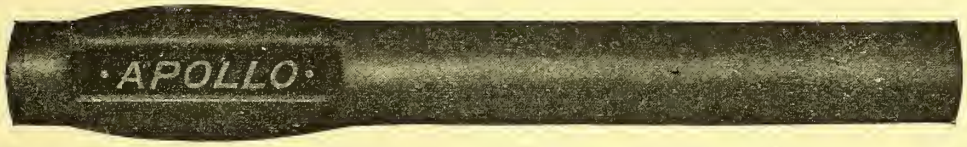
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Pure Tin and Tin Oxide.
Specific in Boils, Acne, etc.
Tablets, Liquid, Ampoules, Gauze, Bath, etc.

TREPOL.
Tartro-bismuthate of potassium. Intramuscular treatment of Syphilis.
Ampoules.

URASEPTINE (Rogier).
A urinary antiseptic in granular form.

VALERIANATE (Gabail).
Odourless and tasteless valerian.
In Liquid form.

SPECIAL NOTICE.

STANNOXYL Tablets English Packing do not require a medicine stamp.

Retail Price - - **3**/- per tube of 80 tablets.
Wholesale Price - **28**/- per dozen tubes.

Physiologically Standardised Preparations

LIQUID EXTRACT OF ERGOT
TINCTURE OF DIGITALIS
TINCTURE OF SQUILLS

The above preparations are tested in the Pharmacological Laboratories of the Pharmaceutical Society of Great Britain, 17 Bloomsbury Square, W.C., and when sent out are labelled with a copy of the certificate issued.

TINCTURE OF SQUILLS.

"5c.c. of this tincture contain the activity corresponding to that in 10 c.c. of a tincture prepared from the international standard Digitalis Powder, as determined by a biological test carried out by the Pharmaceutical Society of Great Britain."

Copy of Certificate issued from the Pharmacological Laboratories, 17 Bloomsbury Square, W.C.1

7/9/26 Batch No. W 2450

C. R. HARKER, STAGG AND MORGAN, LTD.
MANUFACTURING CHEMISTS - - LONDON, E.1

Dr. BENGUÉ'S BALSAM
RHEUMATISM, NEURALGIA, GOUT.

PULMO (BAILLY).—Dr. BENGUÉ'S DRAGÉES.
FORXOL.—HEMOSTYL.—EUPURGO.
Dr. BENGUÉ'S ETHYLCHLORIDE.
RICARD-CACHETS (Free sample on application).
ANESTILE. NARCOTILE. MUTHANOL.
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WRITE FOR SPECIAL TERMS Dr. BENGUÉ & CO., MFG. CHEMISTS, 24, FITZROY ST., LONDON, W.1.

ERGOAPIOL (Smith) PROTECTIVE MARK
Patented in U.S. and Foreign Countries.

Ergoapiol (Smith) is now identified by the letters M.H.S. in the gelatin on the inside of each capsule. These letters are not visible from the outside, but they are plainly discernible in the gelatin when the capsule is cut in half.

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Will keep you closely in touch with all developments in the Newer Remedies.
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MELROSE TABLETS
FOR CHAPPED HANDS
A VERY PROFITABLE SELLING LINE.
Chemists' net prices carriage paid.
2d. tablets 1/4 dozen, 15/- gross. 5 gross 13/6 gross.
3d. tablets 2/- dozen. 6d. tablets 4/- dozen.
ROBERTS & SHEPPEY
2 Skipton Street, - LONDON, S.E.1.

NIGROIDS for the Throat and Voice
Registered Trade Mark.
Sold in tins 4½d. and 1/6 each.
WHOLESALE TERMS ON APPLICATION
Sole Makers : FERRIS & CO. LIMITED, BRISTOL

COLLOSOL FERROMALT

(CROOKES)



THE MOST SUCCESSFUL IRON TONIC on the MARKET.

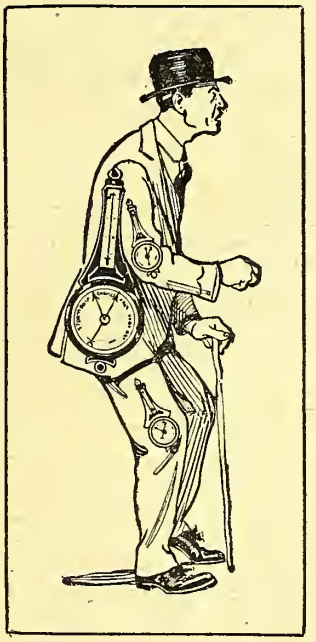
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It does not matter where the Barometer is

CURICONES

will deal with the trouble, be it

Rheumatoid Arthritis, Neuritis, Rheumatism, Gout, Lumbago or Sciatica.

Quick Sales. WELL ADVERTISED.

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Other Lines which also pay to stock:—
ANTHROIDS BALM, CURILAX, VICAPS, STEMAT ANTI-CATARRHAL TABLETS, STEMAT ANTI-CATARRHAL BALM, My Lady's ROLETTE WRINKLE ERADICATOR, SANALVE, THE QUROPAD MASSAGE APPLIANCE, VANITY BOXES, &c.

STEPHEN MATTHEWS & CO. Ltd.

Manufacturing Chemists,
19-20-21 FARRINGDON STREET, LONDON, E.C.4.
'Phone: City 8342. Wires: "Curicone, Cent, London."

ASTOUNDING UNSOLICITED TESTIMONY

continues to reach us of the efficacy of The Beltona Treatment for Rheumatoid Arthritis, Rheumatism, Sciatica, Lumbago, Neuritis, Gout, Colitis, etc.

The following is one recently received and is convincing proof that "Beltona" is a really genuine article :—

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Dear Sirs,

I have very great pleasure in telling you that "Beltona" has helped me wonderfully. I was bedridden for over two years, and I am now able to walk about out of doors and to do my housework except washing. The swelling in the knees and hands have all gone, and I feel as well as I did at 40 and I am now 82.

You are perfectly welcome to publish what I say.

Yours very gratefully,
(Signed) Adelaide Louisa Smart.

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SPECIAL DISPLAY TERMS.

			SELLS.	
1 doz. 3/- size	£1 7 0			
½ doz. 5/- size	1 2 6	1 doz. 3/- size		£1 16 0
	2 9 6	½ doz. 5/- size		1 10 0
5% discount cash with order	2 6	¼ doz. 3/- bonus		9 0
Cost Price	£2 7 0			£3 15 0

The above parcel sent Carriage Paid. **PROFIT—£1 8 0**

BELTONA LTD., HIGH STREET, HODDESDON, HERTS.

STOCKED BY ALL PRINCIPAL WHOLESALERS.

THERE IS ALWAYS A DEMAND FOR

SUGAR COATED PILLS

MADE BY

PARKINSONS

It Pays to Stock Them. ***Trade Enquiries Solicited.***

PARKINSONS *MANUFACTURING CHEMISTS* **BURNLEY**

ARE YOUR TABLETS MADE FROM

P.M. ASPIRIN B.P.

THE ORIGINAL BRITISH MAKE?

If so, you know that they are made from the finest possible aspirin and need fear no competition. Any type supplied—powder crystal, or granular. Price and delivery both right.

P.M. ASPIRIN TABLETS are guaranteed pure. (Supplied by P.M. & CO., Ltd., in bulk quantities only.)

P.M. SALICYLIC ACID passes all Tests.

Samples and Prices on receipt of card.

PIERSON, MORRELL & CO., LTD. (*The Original British Aspirin Makers*),
Telephone No.: Barnet 0723
100, QUEEN'S ROAD - - BARNET
Telegrams and Cables: "Pierson Morrell, Barnet."

NOTICE

TO ALL RETAIL CHEMISTS

PETROLAGAR (Deshell) has become the DOMINANT treatment for constipation and its success is acknowledged to be due entirely to its own merit.

Doctors throughout the British Isles are prescribing PETROLAGAR (Deshell) daily because it yields definite results, as it gives results as an intestinal :: lubricant not possible with plain oils ::

You should not compel your customers to go to your competitor for PETROLAGAR. Your doctor friends as well as your lay customers appreciate the fact that you carry PETROLAGAR (Deshell) in stock at all times.

ORDER FROM YOUR WHOLESALER TO-DAY

PETROLAGAR (Deshell) is issued in pound and half-pound sizes in four varieties as under :

PLAIN (No. 1) With PHENOLPHTHALEIN (No. 2)
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Retailing P.A.T.A. at 5/6 and 3/- per bottle respectively.

DESHELL LABORATORIES LTD.

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CLARKE'S BLOOD MIXTURE & OTHER PREPARATIONS

Wholesale Prices.

	SIZES.	PRICE PER DOZEN.
Clarke's Blood Mixture	3/- & 12/-	£1 : 7 : 0 & £5 : 8 : 0
„ Miraculous Salve	1/3, 3/- & 5/-	11/-, £1 : 7 : 0 & £2 : 4 : 6
„ Special Aperient Pills ..	1/3, 3/- & 5/-	11/-, £1 : 7 : 0 & £2 : 4 : 6
„ Patent Skin Lotion ..	1/3	11/-
„ Medicated Soap	1/-	9/-

Orders: Minimum quantity £16 : 4 : 0 value.
FREE CASES. Carriage paid upon orders of £100.

All Wholesale Houses keep a large stock of our Preparations and can supply smaller orders promptly.

Minimum Retail Selling Prices: 1/-, 1/3, 3/-, 5/- & 12/- Face Value, giving a **PROFIT** of 33⅓% on cost to Distributors.

An attractive Showcard and Dummies supplied on application.

Trade Mark: "BLOOD MIXTURE." Regd. No. 3275.

Sole Proprietors:

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GLANDULAR PREPARATIONS

are the product of a Laboratory which deals with nothing else. They are "specialties" in the best sense of the word. Hence their value.

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A concentrated, stable, homogeneous and palatable emulsion of

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AGAR-AGAR, PETROLAT. liq. (heavy), SACCH., flavouring

Indicated in Constipation, Intestinal Stasis with Chronic intestinal putrefaction, etc.

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THE NEW (12 vols.) PEROXIDE

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THREE SIZES.		POPULAR PRICES.
4 oz.	Retailing at	1/-
8 oz.	,, ,,	1/6
16 oz.	,, ,,	2/6

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Wholesale prices showing exceptionally attractive terms.

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Dr. J. Collis Browne's CHLORODYNE

is not affected by above Order or Regulations.

It does not require purchaser's signature.

Proprietors: **J. T. DAVENPORT, Ltd., 83/87 Union Street, S.E.1.**

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Write for quotation and secure extra discounts.



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THE DENVER CHEMICAL MFG. CO.

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ROBORANS

(ROBERTS)

Recognised by the Medical Profession as

THE BEST TONIC.

Supplied in 8-oz. and 16-oz. Bottles by all the Wholesale Houses.

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NEW & RARE MEDICINES

of French, Italian and Russian Origin.

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Join The Association of Manufacturing Chemists, Ltd.

which is **THE MEDIUM** for the **TRADE.**

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26/28 KIMBERLEY HOUSE, HOLBORN VIADUCT, E.C.
Telephone: City 6942.
Or 35, 36 & 37 EXCHANGE CHAMBERS, 2 BIXTETH ST., LIVERPOOL. *Telephone: Central* 4330 (4 *lines.*)

DR. BOW'S

LINIMENT.

Prepared by his Great-Great-Grandson

TRADE MARK REGISTERED

(J. D. R. BOW, Managing Director.)

RETAIL 3/-

The Gothic window and the name "DR. BOW'S LINIMENT" are Registered Trade Marks and appear on every bottle. Anyone using the name or any similar name is liable to be proceeded against.

The above label in Blue appears on outside wrapping.

DR. BOW'S LINIMENT, Ltd.

Works—7 South Gray St., Edinburgh.
Registered Office—3, 4 & 5 Queen St., Cheapside, London, E.C.4

TRADE MARK REGISTERED.
FOR COUGHS.
Owbridge's Lung Tonic
FOR COLDS.

A Happy Christmas
and a
Prosperous New Year
to all our Friends.

W. T. OWBRIDGE, LTD., The Laboratory, HULL.

YEAST-VITE

PLEASE NOTE

On and after January 1st, 1927, we are *discontinuing* our 2/9 bottle and placing on the market a 3/- bottle, and the terms to retailers will be 30/- doz.

PRICE OF NEW SIZE 3/- @ 30/- per doz. **ON USUAL TERMS.**

This does not mean an increase, as we are adding more tablets.

YEAST-VITE, 12/16 Laystall Street, LONDON, E.C.1

IRVING'S

YEAST-VIMAL

THE NEW PURE YEAST TONIC FOOD SHOWS VERY BIG PROFITS.

IN TWO SIZES, 1/6 & 3/- **PRICES, 15/- & 30/- per doz.**

FIRST CLASS PUBLICITY.

BONUS PARCELS

FIRST ORDER	REPEAT ORDER Not less, or equivalent.
1 doz. ... ... 1/6 — 2 Free	3 doz. ... ... 1/6 — 6 Free
½ „ ... ... 3/- — 1 „	½ „ ... ... 3/- — 2 „

From **YEAST-VIMAL, 12/16 Laystall Street, LONDON, E.C.1**

A New Dr. Cassell's Showcard



"The Factory and its Products."

We are adding to our list of selling aids a handsomely printed display card in the form of a clock dial, intended to indicate the hours at which you close your establishment.

Just the thing to put in the door window during lunch hour.

The card is produced in mahogany and gold, and it is extremely artistic.

You will find it a great convenience and a handsome ornament.

Send a postcard and have a copy at once!

The
VENO DRUG CO. (1925) LTD.
Manufacturing Chemists,
Chester Road,
Manchester, England.

Telephone Nos :
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Telegraphic Address :
"SEAWEED," MANCHESTER.

PHOSFERINE

New Window Display Conditions

Monthly Account. ***Carriage Paid.***

For a small Central Window Display of not less than 14 days and an order for £5 worth of Phosferine we allow a bonus of 10/6, on a £2 10 0 order 5/3.

This shows a net profit on the transaction to the Chemist of 35%, besides attracting the passer-by to the window and considerably augmenting sales generally.

Should a £5 or £2 10 0 parcel not be required, any smaller quantity will be forwarded carriage paid, and can, if desired, be regarded as part of the £5 or £2 10 0 order. On completion of the order and a notification that the display is in progress the bonus will be allowed.

The above conditions apply only to the United Kingdom.

EXAMPLE.

		COST	SELLS FOR
3½ dozen 1/3 size at 12/- net	....	£2 2 0	£2 12 6
2 „ 3/- „ at 30/- „	....	3 0 0	3 12 0
		5 2 0	
Less 10/6 for Window Show	....	10 6	
		£4 11 6	£6 4 6

Showing a Net Profit of £1 13 0 on an outlay of £4 11 6.

Window Display Material Free and Carriage Paid.

WHOLESALE PRICES OF PHOSFERINE.

Carriage Paid.		*Monthly Account.*
1/3 size	....	12/- per doz. net.
3/- „	....	30/- „ „
5/- „	....	48/6 „ „
12/- „	....	114/- „ „

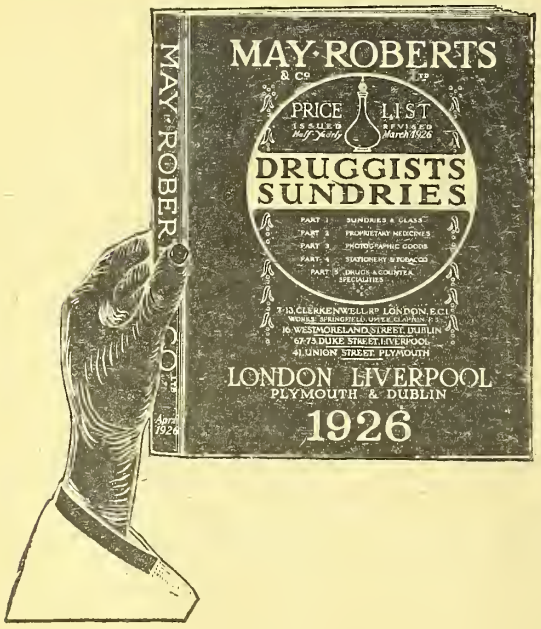
PROTECTED PRICES.

Phosferine and all of our Proprietary Medicines are supplied on the condition that they are not retailed in the United Kingdom under the following prices—viz., 1/3, 3/-, 5/-, and 12/-.

ASHTON & PARSONS, Ltd., Ludgate Hill, LONDON, E.C.4.

Telephone No.: CITY 8733. Telegraphic Address: "PHOSFERINE, CENT, LONDON."

IMPORTANT.—Every care is used in corking and packing Phosferine, but occasionally a leaky bottle will pass undetected. Any leaky or faulty bottle should be returned to Ashton & Parsons, Ltd., Ludgate Hill, London, E.C.4, when a fresh supply will be sent and postage refunded.



THE BEST of all Xmas Cards

IF you will send us a post-card we shall be happy to send you by return a copy of what will prove to be the most useful Christmas Card you have ever received.

You will find that this will be of great use in enabling you to carry out your intention of ensuring yourself

Prosperity in 1927

YOURS FOR A POSTCARD.

Part 1. Sundries and Glass. **Part 2. Proprietaries.**
Part 3. Photographic Goods. **Part 4. Stationery and Tobacco.**
Part 5. Drugs and Counter Specialities.

MAY, ROBERTS & CO., LTD.

(P.O. Box 157)

7-13 Clerkenwell Road, London, E.C.1

and at
LIVERPOOL, PLYMOUTH and DUBLIN

[72]

THE CHEMIST AND DRUGGIST SUPPLEMENT

42 CANNON ST. LONDON E.C.4

DECEMBER 25, 1926

This Supplement is inserted in every copy of The Chemist & Druggist.

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REVISED ADVERTISEMENT TARIFF.

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Legal Notices, Tenders, Auctions, and all specially-spaced announcements, **1/3** per nonpareil line (12 lines = 1 inch single column).

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EXCHANGE COLUMN (for Retailers, etc.)—**Twopence** per word, minimum **2/-**.

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THE CHEMIST AND DRUGGIST, 42 Cannon Street, LONDON, E.C.4.

Telephone: Central 3617 (3 lines). Telegrams: "Chemicus, Cannon, London" (2 words).

CLOSING FOR PRESS.

MUST REACH US NOT LATER THAN **FIRST POST THURSDAY MORNING.**

ALL ADVERTISEMENTS INTENDED FOR INSERTION IN THIS SUPPLEMENT

CHEMISTS' TRANSFERS.

Messrs. Orridge & Co., 56 Ludgate Hill, E.C.

Telephone No.: CITY 2283.

May be consulted at their Offices on matters of Sale, Purchase and Valuation

1.—BORDERS OF CITY.—Cash Retail Business in busy shopping thoroughfare; returns, £44 weekly; attractive shop; estimated value of stock and fixtures, £1,000; held on lease at moderate rental; price £1,250, or valuation terms entertained.

2.—LONDON, S.W.—Cash Retail Business, with N.H.I. Dispensing; returns, £1,200, at good prices; single-fronted shop, with large stock; new 21 years' lease will be granted at a rental of £50 per annum; lock-up Pharmacy; lump sum offer or valuation terms entertained.

3.—LONDON SUBURB.—Medium-class Retail and N.H.I. Dispensing; returns about £2,400, at very good prices; double-fronted corner shop, with good working stock; ample living accommodation; garden; long lease; moderate rental. Further details on application.

4.—LONDON, W. (Residential).—General Retail Business, with Kodak Agency; returns about £2,000 per annum at good prices; double-fronted shop, held on lease at moderate rental; vacant possession of house; valuation terms entertained, or lump sum offer of £1,250 accepted.

5.—LONDON, N.—General Retail, with Kodak Agency; returns £1,800 at usual prices; well fitted and stocked; rent £50; sublet over £100 per annum; rates £8 15s.; price £800.

6.—NORTH KENT.—Old-established Business and Branch; combined turnover last year about £2,600; the Vendor is an elderly man, and under more energetic management the returns could be increased materially; rent at each premises £40 per annum; would sell separately if required.

7.—BALHAM.—General Retail Business, returning £18 weekly under indifferent management; very well fitted, double-fronted shop, lock-up; inclusive rental £65; 20 years' lease; terms, valuation of stock and fixtures only.

8.—WEST OF ENGLAND.—Cash Drug Store in small town, with large scope for increase by the addition of N.H.I.; corner shop, well fitted; large house; no serious opposition; price £500; property may also be purchased.

9.—BORDERS OF SUSSEX AND HANTS.—Village Business and Freehold Property with frontage of 45 ft. to main road; situate in rapidly increasing district, with present population of 2,000; large garden, 75 ft. x 45 ft.; greenhouse and prize fruit trees and roses; business producing £250 net profit at the moment, but with scope for large extension; price £1,000, all at; alternatively, vendor would grant a lease and sell the business alone for £350.

10.—LEEDS (Main Road).—Working-class Business, offering scope for considerable increase under personal supervision; returns, under management, £1,000; small house; rent £50; price for quick sale, £550.

11.—NORTH-EAST COAST.—Family Retail Business, with N.H.I. and Wine Licence; established by vendor 40 years since; returns £4,400; estimated value of stock and fixtures £2,700; flat above, with private entrance; rent £80; price £3,200; part payment entertained.

12.—SHROPSHIRE.—Country Retail Business; established many years; returns £3,200; net profit exceeds £600; double-fronted shop; very good house; would sell property for £1,250, or grant lease at rental of £80; price of business, £2,000.

13.—HERTFORDSHIRE.—Drug Store and Confectioner, with very good opening for qualified man; returns, £15 to £16 weekly; double-fronted shop; house contains 5 rooms and scullery; garden; held on lease, which is renewable; no near opposition; price £450.

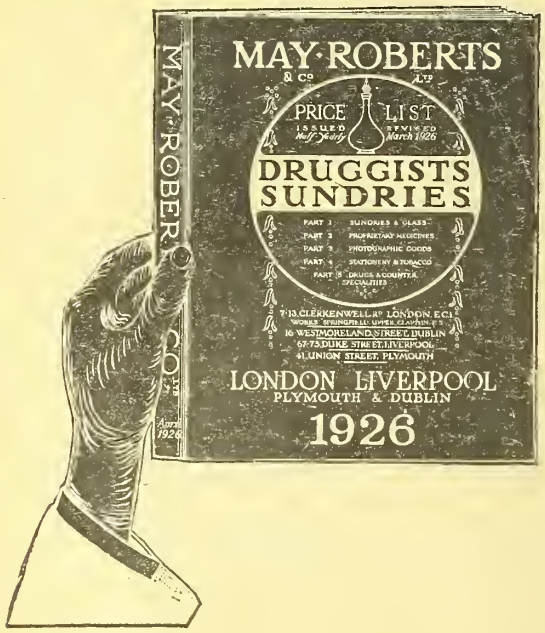
14.—SOUTH COAST (Health Resort).—General Retail and Photographic Business; returns £2,200; modern double-fronted lock-up shop, fitted in oak and fully stocked; 18 years' lease; price £1,750; also small Branch, with good living accommodation; price £550; scope for increase in both cases.

Messrs. O. & Co. desire to emphasize the necessity of a periodical Statement of Account by which means alone **Profit, the value of Business, &c.,** can be determined. Involving as this does the labour of Stocktaking and Valuation, it is often omitted and eventually becomes confusion and loss.

Valuations for Stocktaking

Messrs. O. & Co. are prepared to undertake these essential duties and make **Special Terms** for such service.

ORRIDGE & CO., 56 LUDGATE HILL, LONDON, E.C.4



THE BEST of all Xmas Cards

IF you will send us a post-card we shall be happy to send you by return a copy of what will prove to be the most useful Christmas Card you have ever received.

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1.—BORDERS OF CITY.—Cash Retail Business in busy shopping thoroughfare; returns, £44 weekly; attractive shop; estimated value of stock and fixtures, £1,000; held on lease at moderate rental; price £1,250, or valuation terms entertained.

2.—LONDON, S.W.—Cash Retail Business, with N.H.I. Dispensing; returns, £1,200, at good prices; single-fronted shop, with large stock; new 21 years' lease will be granted at a rental of £50 per annum; lock-up Pharmacy; lump sum offer or valuation terms entertained.

3.—LONDON SUBURB.—Medium-class Retail and N.H.I. Dispensing; returns about £2,400, at very good prices; double-fronted corner shop, with good working stock; ample living accommodation; garden; long lease; moderate rental. Further details on application.

4.—LONDON, W. (Residential).—General Retail Business, with Kodak Agency; returns about £2,000 per annum at good prices; double-fronted shop, held on lease at moderate rental; vacant possession of house; valuation terms entertained, or lump sum offer of £1,250 accepted.

5.—LONDON, N.—General Retail, with Kodak Agency; returns £1,800 at usual prices; well fitted and stocked; rent £50; sublet over £100 per annum; rates £8 15s.; price £800.

6.—NORTH KENT.—Old-established Business and Branch; combined turnover last year about £2,600; the Vendor is an elderly man, and under more energetic management the returns could be increased materially; rent at each premises £40 per annum; would sell separately if required.

7.—BALHAM.—General Retail Business, returning £18 weekly under indifferent management; very well fitted, double-fronted shop, lock-up; inclusive rental £65; 20 years' lease; terms, valuation of stock and fixtures only.

8.—WEST OF ENGLAND.—Cash Drug Store in small town, with large scope for increase by the addition of N.H.I.; corner shop, well fitted; large house; no serious opposition; price £500; property may also be purchased.

9.—BORDERS OF SUSSEX AND HANTS.—Village Business and Freehold Property with frontage of 45 ft. to main road; situate in rapidly increasing district, with present population of 2,000; large garden, 75 ft. x 45 ft.; greenhouse and prize fruit trees and roses; business producing £250 net profit at the moment, but with scope for large extension; price £1,000, all at; alternatively, vendor would grant a lease and sell the business alone for £350.

10.—LEEDS (Main Road).—Working-class Business, offering scope for considerable increase under personal supervision; returns, under management, £1,000; small house; rent £50; price for quick sale, £550.

11.—NORTH-EAST COAST.—Family Retail Business, with N.H.I. and Wine Licence; established by vendor 40 years since; returns £4,400; estimated value of stock and fixtures £2,700; flat above, with private entrance; rent £80; price £3,200; part payment entertained.

12.—SHROPSHIRE.—Country Retail Business; established many years; returns £3,200; net profit exceeds £600; double-fronted shop; very good house; would sell property for £1,250, or grant lease at rental of £80; price of business, £2,000.

13.—HERTFORDSHIRE.—Drug Store and Confectioner, with very good opening for qualified man; returns, £15 to £16 weekly; double-fronted shop; house contains 5 rooms and scullery; garden; held on lease, which is renewable; no near opposition; price £450.

14.—SOUTH COAST (Health Resort).—General Retail and Photographic Business; returns £2,200; modern double-fronted lock-up shop, fitted in oak and fully stocked; 18 years' lease; price £1,750; also small Branch, with good living accommodation; price £550; scope for increase in both cases.

Messrs. O. & Co. desire to emphasize the necessity of a periodical Statement of Account by which means alone **Profit, the value of Business, &c.,** can be determined. Involving as this does the labour of Stocktaking and Valuation, it is often omitted and eventually becomes confusion and loss.

Valuations for Stocktaking

Messrs. O. & Co. are prepared to undertake these essential duties and make **Special Terms** for such service.

ORRIDGE & CO., 56 LUDGATE HILL, LONDON, E.C.4

The Association of Mnfg. Chemists

— LIMITED —

Business Agency Transfer & Valuation Department.

Head Offices—

Kimberley House, Holborn Viaduct, London,

E.C.1 (and at 2, Bixteth Street, Liverpool).

PARKIN S. BOOTH, *Accountant & Valuer, Phone: City* 1261-2-3

BUSINESSES FOR DISPOSAL

1.—MANCHESTER SUBURB.—Old-established Business in busy suburb; well fitted and stocked; corner position; good house; on lease; returns £700-£1,000, all cash; rent £50 p.a.; let off 14s. 6d. p.w.; price for quick sale £500 all at, or nearest offer. (74)

2.—NORTHUMBERLAND.—Recently-established Cash Pharmacy, with Kodak Agency; average takings £15 15s. per week, which could be considerably increased by energetic qualified man; lock-up shop, rent 5s. per week, house attacned; price for goodwill and fixtures, £275; stock to suit purchaser; offers invited. (36)

3.—ALFRETON, DERBYS.—Old-established Business, held on loase, 7 years to rnn; rent £50 p.a.; retnrns over £2,000 p.a.; premises on main road, and consist of shop, large house, 4 outside warehouses and garage; proprietor, unqualified, and devoting his time to optical business; price £1,500 all in, or £1,300 withont optics; exceedingly good opportunity for energetic Chemist; well worth investigation. (84)

4.—YORKS.—£900 will pnrchase large double-fronted Shop with Warehouse attached on lease, with 9 years to run; returns £25 per week, nearly all cash; stock about £500; rent £50. Further particulars on application. (60)

5.—YORKS.—Good-class Dispensing and Retail Business in busy town; double-fronted shop with house attached in main road; returns £35 per week, all cash; stock about £700; Kodak Agency; price £850. Further particulars on application. (71)

6.—GRIMSBY.—£1,000 will be accepted for an old-established Bnsiness, freehold, taking £25 a week, all cash; house, shop, warehouse and cellar; stock amounts to approximately £200; death vacancy. Write for fnrther particulars and order to view. (75)

7.—CHESTERFIELD.—Old-established, donble-fronted shop, 3 warehouses, house, 6 rooms and cellars; lease can be obtained; returns £34 per week, practically all cash; stock £700; fixtures, fittings and goodwill £550; price for quick sale £1.100. (65)

8.—TO CLOSE A TRUST. — SALFORD. — Old-established corner Shop, with 3 large windows and largo house, part of which conld be sub-let; rent, £120 p.a.; returns, £2,000, all cash; price for goodwill, £300; stock and fixtures, about £900; well worth inspection; write for further particulars. (81)

9.—MANCHESTER SUBURB.—Good-class Dispensing and Retail Business in charming residential suburb; returns, £30 per week, all cash; no opposition; Kodak Agency; freehold will bo sold £1,000, or let on lease at £90 p.a.; price for lease and goodwill £250; stock and fixtures at valuation, approximately £750. Further particulars on application. (82)

10.—MONMOUTH. — Light Retail Dispensing and Photographic Bnsiness; large shop with one long window; shop 38 ft. long; 2 rooms at rear; also dark-room; 3 rooms above; large fruit and vegetable garden; held on lease for 11 years at £178 inclusive; let off £26 per annnm, but plenty of modern private houses to let in the vicinity at rents from 9s. 6d. to 15s. weekly; retnrns, £2,640; excellently fitted and good stock carried; vendor requires city business; price for qnick sale all at £1,850. Fullest particulars on application. (88)

11.—LIVERPOOL.—Old-established high-class Dispensing and Family Business, with valuable Proprietary in connection therewith; returne over £2,000 at approximately 62% gross profit; premises held on lease, of which 12 years is to run at a rental of £180 p.a., rising to £200, with possibility of renewal for fnrther period. Full particulars will be sent on application. (51)

Stocktaking and Valuation of Businesses undertaken at moderate inclusive fee. Chemists are invited to consult us in respect of their requirements in connection with sale or purchase of bnsinesses. Chemists in the North are requested to communicate with our Liverpool Offices.

BERDOE & FISH

WILLIAM S. FISH.

VALUERS AND TRANSFER AGENTS

41 Argyle Square, KING'S CROSS, W.C.1

(one minute from St. Pancras and King's Cross Stations).

1.—BOURNEMOUTH (Near).—Sound progressive Light Cash Retail in good position; returns about £2,000; easily worked; good house attached; modern fittings and fully stocked; price £1,350; worth attention.

2.—NORTH-EAST COAST.—Good-class Business, in popular seaside resort; returns £1,300; good prospects; main road position; well stocked; through ill-health will accept £850 for early sale.

3.—BEDFORDSHIRE.—Sonnd Light Cash Retail, in main road position, growing district; returns £1,900, chartered figures; modern pharmacy, heavily stocked; low rent; price £1,500, or valuation terms arranged.

4.—SHROPSHIRE.—Old-established Retail Dispensing and Agricultural Business, returning £3,200; net profit, £582; audited accounts; large shop with good honse; heavily stocked; price £2,000; freehold property, £1,250.

5.—LEEDS.—Cash Retail and Prescribing, with N.H.I.; returns £1,004; gross profit 40%; principal would soon double; low rent; well stocked; price £550.

6.—HERTS.—Light Cash Retail, in growing town; returns £18 a week; scope for increase, rent £50; lease granted; small house and good garden; price £450.

7.—LONDON, S.W.—Profitable Cash Retail; under unqualified manager; returns about £1,550; plenty of scope; low rent; small living accommodation; price £775; worth attention.

STOCKTAKING VALUATIONS.

May we quote you a price for doing this important work? Stocktaking, to be of real use, should be done thoronghly, and with our experienced and expert staff we are able to guarantee this, at the same time carrying out the work quickly and without upsetting the general routine of bnsiness. We are now booking dates for January and onwards.

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AGENCY.

LEIPZIG Distillers of Essential Oils, Synthetic Scents and Smelling Salts require an Agent for Great Britain. Write L.P.6975, Rudolf Mosse, Ltd., 125/130 Strand, London, W.C.2.

We desire particularly to draw the attention of Colonial and Foreign Subscribers to the fact that in cases where they require partners, agents or assistants, or wish to sell their businesses, an Advertisement in this Supplement, placed in every copy of "The Chemist and Druggist," should be the readiest means of helping them to attain their object. The tariff for such announcements is given under the appropriate headings in the Supplement. Instructions and remittances can be sent to us direct or through the advertisers' correspondents in this country.

PHOTOGRAPHS, TESTIMONIALS, &c.

When answering advertisements in this section applicants are strongly advised not to send (unless specially requested) ORIGINAL TESTIMONIALS or VALUABLE PHOTOGRAPHS. As can be readily understood, when an advertiser receives from 50 to 100 replies the task of returning photographs, testimonials, &c., is one of some difficulty.

SITUATIONS OPEN.

RETAIL.

[*HOME.*]

6s. for 40 words or less; 6d. for every additional 10 words or less, prepaid.

BIRMINGHAM.—Qualified man, with good all-round experience, used to busy business and store methods. Please give full particulars to Atkinson, Chemist, Six Ways, Birmingham.

BRIGHTON.—Lady Assistant required, with good Dispensing and Counter experience. Apply by letter, stating qualifications and salary required, to A. J. Orme, Pharmacist, 68 Portland Road, Hove.

MANCHESTER.—Qualified Assistant wanted for suburban branch, capable of taking charge; middle-class trade, and N.H.I. Dispensing. Apply, stating age, experience, salary required, and when at liberty, 51/16, Office of this Paper.

NORTH LONDON.—Experienced lady Assistant for working-class district. Give salary required and full particulars. 94/240, Office of this Paper.

WEST RIDING.—Wanted, qualified Managing Assistant, about 30; must have good experience of modern store business methods; a conscientious and careful worker with enterprise and initiative, able to control staff, also possess ideas on modern Window Displays and Salesmanship; having a good knowledge of Photography, both as respects sales and giving advice to customers; the position is permanent and progressive to the right man; state age, height, salary required, and full particulars of experience up to present date; references must bear strictest investigation. 59/27, Office of this Paper.

JUNIOR Assistant required; Retail, N.H.I. and Photographic; outdoors; would suit one just out of apprenticeship. Apply, by letter only, Garlick, Chemist, Chesham.

JUNIOR or Improver required, to commence after Christmas; one used to N.H.I. and Counter; age 18-22; London experience preferred. G. W. Fitton, 392 Kingsland Road, Dalston, E.8.

MANAGER (qualified) and Assistant Manager (unqualified) required as soon as possible by Rich, The Chemist, Ltd., Swansea; Salesmen with knowledge of Rexall, Ucal, Kodak and Surgical lines; interview. Give full particulars, when disengaged, salary required, etc., in first letter, please.

QUALIFIED Junior required early in the New Year, with knowledge of Photography, Window-dressing, etc. Write, stating salary required, C. Woollons, 28 Kilburn Lane, W.10.

QUALIFIED Assistant required. State full particulars and salary to F. Gardiner, Ltd., 22 Bell Hill Road, St. George, Bristol.

YOUNG lady required for General Retail, N.H.I. and Photographic business; good knowledge of D. and P. essential. Garlick, Chemist, Chesham.

YOUNG qualified Assistant wanted immediately. Please state age, height, salary, and when disengaged. Rees Walters, Ltd., 93 Queen Street, Cardiff.

WHOLESALE.

6s. for 40 words or less; 6d. for every additional 10 words or less, prepaid.

CONSULTING Chemist, with experience in Oils, Fats and Perfuming Soap, required by soap company in west outskirts of London; be prepared to visit works when required; annual inclusive fee. Write, giving particulars, experience, and references, to Box 2222, Samson Clark & Co., Ltd., 57 Mortimer Street, W.1.

REPRESENTATIVES required to carry on good commission basis established and well-advertised Specialities; only those with established connection amongst Chemists and allied trades entertained. Reply, mentioning ground covered, lines carried. Apply 94/237, Office of this Paper.

SALESMAN, Cheshire and North Wales, represent old-established Packed Goods and Druggists' Sundries House; must have sound connection on ground; commission basis. Application to be sent to 94/239, Office of this Paper.

[COLONIAL, INDIA AND FOREIGN.]

BRITISH COLONY.—A firm of European Chemists in a British Colony have a vacancy for an Assistant in early January; salary £350 per annum; two years' engagement; free quarters; preference will be given to a Scotsman. Apply 94/238, Office of this Paper.

MALAY STATES.—Junior Assistant (qualified) required for Malay States; single; age about 25; salary $300 (£35) per mensem for first year, $325 (£37 18s. 4d.) for second year, $350 (£40 16s. 8d.) for third year, with second class passage out and home; excellent prospects for right man; living costs in club chambers approximately $145 (£16 18s. 4d.) per mensem, board and lodging. Apply, by letter only, to Dakin Bros., Ltd., 82 Middlesex Street, London, E.1, with copies of references.

PREMISES FOR SALE.

BUSINESS PREMISES FOR SALE.

A GOOD opening is offered in new House and Shop, Birkenhead, for up-to-date Chemist to rapidly build connection in growing middle-class district; no opposition; good position; shop front as required; freehold; price £1,400; £900 on mortgage. Particulars, Brown & Sanders, Architects, 67 Dale Street, Liverpool.

SITUATIONS WANTED.

RETAIL.

[*HOME.*]

2s. for 18 words or less; 6d. for every additional 10 words or less, prepaid.

The ADVERTISER may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

A.A.A.—MANAGER, experienced, reliable, qualified Chemist, desires post as Manager in good-class business; sober, trustworthy business man. "Meritor," 59/34, Office of this Paper.

A.A.—LOCUM or permanency; Dispensing, Counter, Prescribing, Windows, Photography; energetic; trustworthy; experienced. Harries, 33 Albert Square, S.W.8.

A CAPABLE, experienced, unqualified Assistant, accustomed to manage; mid-aged; single. "Statim," c/o Miss Wills, "The Buttway," Cliffe-at-Hoo, Kent.

AFTER Christmas.—Qualified; permanency or Locum; fully experienced and capable in all duties. "Chemist," 85 Lancaster Road, Leytonstone, E.11.

AS Manager or qualified Assistant; age 48; outdoor; London district; disengaged January 1; highest experience in best-class Pharmacies; permanency desired. 59/37, Office of this Paper.

ASSISTANT, 30, married, seeks permanency; thorough all-round experience, Dispensing, Counter, Photography, Window-dressing; passed Part I; conscientious; willing. 58/8, Office of this Paper.

QUALIFIED, 42, desires situation as Manager or Assistant; 19 years' London experience as manager; capable; accustomed to quick Counter and N.H.I. work. Milne, 29a Telferscot Road, Balham, S.W.

Public Health (Preservatives, etc. in Food) Regulations, 1925

The trade are hereby advised that our **TOMLINSON'S BUTTER POWDER** and **BUTTER COLOURING** conform in every respect to the requirements of the new Act. Printed matter will be sent on application.

STOCKED BY ALL WHOLESALE HOUSES

Your enquiries are solicited for ***WATER GLASS,*** *of which we are the largest packers.*

TOMLINSON & HAYWARD Ltd. *Manufacturing — Chemists —* **51 Newland, LINCOLN**

NAMES AND ADDRESSES.

When sending advertisements for any of the sections in this Supplement, advertisers—as a guarantee of good faith and not necessarily for publication—should always give their names and addresses. It sometimes occurs that this rule is not followed and delay and disappointment ensues. Strict attention to this detail will be appreciated.

QUALIFIED, lady; first-class experience in Dispensing, Photographic and Counter; capable of taking charge; R.P.U. Business Course student; Manchester vicinity preferred. S. Fox, 232 Stockport Road, Cheadle Heath, near Stockport.

QUALIFIED; elderly; highest testimonials; Photographic; active; disengaged early January. "M.P.S.," Wayside Pharmacy, Claygate, Esher.

STUDENT requires part-time situation; evenings only; 6 years' experience. "E. J. C.," 107 Ruckholt Road, Leyton.

UNQUALIFIED Assistant; age 21; 5½ years' all-round experience; South of England preferred; disengaged. Constantine, Lock House, Goring, Reading.

UNQUALIFIED Assistant seeks situation; 5 years' good experience in high-class Chemist; Counter, Dispensing, Photographic; good reference. "Harris," 2 Francis Street, Cheltenham.

1927.—YOUNG, strong, healthy Pharmacist (married), thoroughly experienced and trustworthy, seeks post of confidence and responsibility; appreciates and maintains clean, smart shop; clean, saleable, complete stock; select, arresting, selling window displays; good salesmanship, courteous, obliging service; make, obtain, send anything—nothing too much trouble; where hard work and hard thinking has prospects of progress and a settled job for life would invest savings, £400 cash. P.C.B. 71/27, Office of this Paper.

MISCELLANEOUS.

10s. for 60 words; 1s. for every additional 10 words or less.

The Advertiser may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

EDITORIAL ASSISTANT.

THE CHEMIST & DRUGGIST require the services of a qualified Chemist, not over thirty, with literary ability and a good knowledge of languages, as an Editorial Assistant. Applicants should state their qualifications concisely and mention salary expected. Letters should be addressed "M. B.," 42 Cannon Street, London, E.C.4.

MAHOGANISED CHEMISTS' FITTINGS.—Complete Drug-fittings, 12 ft. and 10 ft. long, drawers, glass labels, glass knobs; Wallcases, 10 ft., 9 ft., 8 ft., and 7 ft. long; glass front Counters, 10 ft., 9 ft., 8 ft. and 7 ft. long; Dispensing Screens, 7 ft., 6 ft. and 4 ft. long; Perfume Case and Desk, two 4 ft. nests Counter Drawers; Silent Salesman, 6 ft. high, 24 x 20. Low prices to clear. GEORGE COOK, Chemists' Fitter, 27 Macclesfield Street, City Road, E.C.1.

5/6 1 year	10/6 2 year	MACK'S LEDGERS One Year Two Books in one. Spare Cash Books, 3/6, 6/- MACKIVOR, 45 HIGHTOWN, CREWE	16/- 4 year	20/- Red Lines

SECOND-HAND CHEMISTS' FITTINGS.—We have an exceptionally fine selection of these in all sizes and styles, are right, and goods are in first-class condition; we shall be pleased to supply particulars and prices. Call or write, RUDDUCK & CO., 262 Old Street, London, E.C.2.

SECOND-HAND Shop Fronts, Drug Fittings, cheap; also Glass Counters, Dispensing Screens, Silent Salesman Showcases, Glass Shelves for window display. 8 ft. long x 7 ft. 6 in. high x 10 in. deep on bottom and 7 in. deep on top part Chemist Wall Showcases; three in stock at very reasonable price. A. FARLEY & CO., 227 Old Street, E.C.2.

£144.—COMPLETE Set of Mahogany Fittings for a modern Pharmacy, comprising: 14 ft. Drug Fitting, complete with drawers, lockers, cupboards, cornice and shelves; 12 ft. Counter with glass cases in front; 6 ft. Wall Showcase; 6 ft. Dispensing Screen and Counter; two nests of Counter Drawers; Perfume Case and Desk; 6 ft. Flat Counter Case and Cash Till. Detailed specifications and sketches on request to PHILIP JOSEPHS & SONS, LTD., 93 Old Street, E.C.1. Pharmacy Fitters for over a Century.

£155.—MAGNIFICENT Set of Mahogany Chemist's Fittings: 15 ft. Drug Fitting, with drawers, cupboards and lockers under and showcases, shelves, etc., over; 6 ft. Recess Wall Case; 10 ft. glass fronted Counter with drawers at back; 4 ft. all-glass Counter; 6 ft. handsome Dispensing Screen, with counter, drawers and shelves at back; Perfume Case and Desk; 4 ft. bent plate-glass Counter Case; Check Till, 100 Shop Rounds; all ready for immediate despatch and a great bargain. PERCY R. E. JOSEPHS, 232/238 Bishopsgate (1st floor), corner of Brushfield Street, London, E.C.2 (only address). 'Phone: Avenue 1194.

STOKES' 23 Punch Rotary Tablet Machine, Kardex Filing Cabinet, 15 drawers, Gestetner's No. 6 Rotary Cyclostyle and Stand, "Masseeley" Ticket and Show Card Machine with Type and Bevelling Machine. 60/2, Office of this Paper.

EXCHANGE COLUMN.

2d. per word: Minimum 2s.

The Advertiser may if preferred have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

WANTED.

OPTICAL TRIAL CASE, complete; lowest price for cash. "Nidd," 714 Rochdale Road, Manchester.

GOWER, Chemists' Bookseller, 41 Voltaire Road, Clapham, wants Pharmaceutical Books, including Pharmaceutical Formulas, B.P.C., P.J.F., Optical Books.

Price lists, trade circulars, samples, and printed matter can in no case be forwarded, the Box numbers being intended exclusively for specific answers to particular advertisements. The Publisher reserves the right to open and refuse to forward any communications received which he may consider contrary to this rule.

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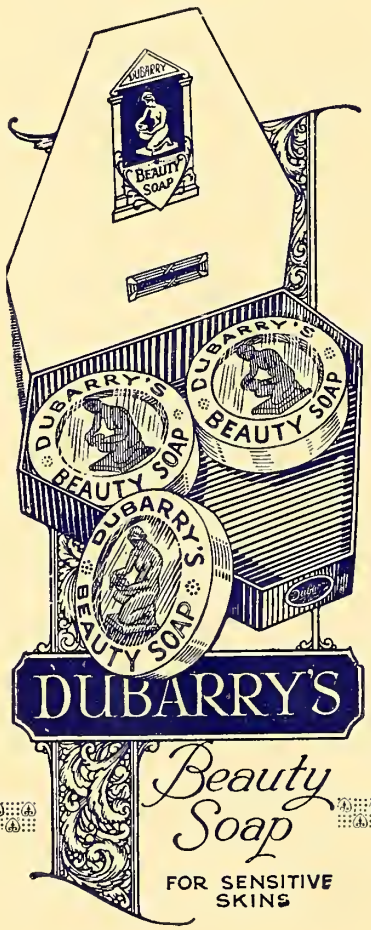
DUBARRY'S Beauty Soap

RETAIL:

Per Tablet - - **6d.**

Box of 3 - - **1/6**

USUAL TERMS.



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Dubarry's Beauty Soap is available in the following varieties :—

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OLD ENGLISH LAVENDER
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VERBENA

DUBARRY ET CIE
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LONDON, S.W.3.

Printed for the Proprietors by THE AVENUE PRESS (L. UPCOTT GILL & SON, LTD.), 55 to 57 Drury Lane, W.C.2, and Published by the Proprietors Morgan Brothers (Publishers), Ltd., at 42 Cannon Street, in the City of London.—December 25, 1926.

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